HAZARDOUS MATERIALS RESPONSE STUDY REPORT

Prepared Under Contract to
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EXECUTIVE SUMMARY

In 1991, the Washington State Legislature directed the Department of Ecology (Ecology) to conduct a study of the need for HAZMAT response teams in Washington State. The study was to be completed by the end of 1993 and address the following items: Review of existing services, determination of where services are needed and the risks of not providing those services, funding requirements, equipment standards, training, mutual aid between jurisdictions, liability and cost recovery. Furthermore, the study was to include a specific recommendation on how to implement regional teams based on geographic location and public exposure. This report documents the findings of that study.

The principal means of obtaining historical Hazardous Material Response (HMR) information was a questionnaire polling approximately 590 response organizations, public and private (principally firefighter units, followed by local industrial facilities, etc.) throughout the State. The States of Arizona, Colorado, Massachusetts, Michigan, Oregon and New York were surveyed to obtain information which proved useful in developing recommendations for Washington's HAZMAT Emergency Response Program. In addition, discussions were held with various federal government and Washington State agencies.

The following is a synopsis of the study findings:

The State of Washington is currently able to handle most hazardous material spill emergencies in an effective and efficient manner. This success is not by design but the product of the determination of many agencies that work together on an informal basis. However, there are some weaknesses that need to be addressed in order that the program provide the level of public safety and environmental protection needed for the citizens of the state.

State Emergency Response Commission (SERC) - Although the three SERC agencies (Ecology, Department of Community Development and Washington State Patrol) meet regularly at the staff level, the SERC could resolve many of the issues identified in this report if a more formalized organization existed. The SERC was intended to operate in this manner but has not had the resources to do so. The SERC membership should be expanded and a SERC Coordinator position should be created at the Department of Community Development.

HAZMAT Team Certification - A qualification process encouraging competition based on skills, proficiency, equipment inventory and demonstrated readiness would promote and ensure statewide development of HMR capability and would provide a potential source of revenue for public sector offerors with limited operating budgets, e.g. rural fire districts.

The existing SERC should develop a Request for Qualification (RFQ) to identify, qualify, certify and monitor HMR services and to annually re-certify providers/bids from public and private sector offerors. The certification program would apply to HAZMAT Teams used for the cleanup and mitigation phase of a spill response, not first responders.

HAZMAT Regions - All state agencies responsible for monitoring, promoting and enforcing regulations pertaining to, or controlling spills of hazardous substances should develop a common regional system to maximize efficient allocation of resources. The regional concept should be based on specific requirements for trained personnel, timeliness, security and other criteria. HMR capability must be based on some statistical criterion of likelihood or geographic need, but must nevertheless be practically available in all areas in the event of immediate threat to safety and health. A practical regional system will provide a means for existing HMR units and bidders to provide HMR services, and effectively calculate resource requirements and response times. A SERC workgroup should be created to identify HAZMAT response regions and boundaries.

Communications - The Washington State Patrol (WSP) provides the most effective and robust communications system in the state. It can operate independently of outside power and is designed to dispatch response to emergency situations. The WSP should evaluate the feasibility of providing this service and report the findings to SERC.

Equipment - Hazardous materials incident first responders at all levels, regulated and otherwise should be encouraged to purchase and maintain low cost 'quick response' kits in types and quantities appropriate to their level of training. For outlying communities, small businesses and operations, costs of these kits are a significant issue. The state should provide selected communities in outlying areas with initial response kits.

Training - Local response organizations such as fire departments, police, public utilities, or the Washington State Patrol are nearly always the first responders to HAZMAT incidents. It is extremely important that these people receive awareness training to the recognition and identification level. A full-time roving trainer position should be created at the State Patrol to provide awareness and identification training for first responders.

Data Management - No existing reporting system or repository of HMR incident information is currently available in Washington State. A Uniform HMR Database should be established and made resident in all appropriate state oversight agencies, and a requirement should be established legislatively for hazardous material incident reporting and supported by a simple, universal incident report format. Ecology should develop and manage the data base.

Liability - The state should enact or strengthen the existing, HMR-specific HMR 'Good Samaritan' act provisions and protection to allow qualified HMR responders to provide service as needed in emergency situations where designated HMR units cannot respond in a timely manner. Provisions of this act would include 'hold harmless' status for service provided in good faith, compensation for actual costs, and indemnification for costs of legal defense and damages incurred while acting in good faith. A SERC workgroup should be created to evaluate the 'Good Samaritan' statute and recommend improvements as needed.

Cost Recovery - Cost recovery is currently applied at the agency level. A Unified Cost Recovery (UCR) system would improve the rate of collection and cost of collection by providing a mechanism to assess costs and damages of hazardous material releases and other violations and to apply a standard cost formula based on types and quantity of materials, personnel time and materials costs, and short- and long-term remediation costs. A SERC workgroup should be created to fully evaluate the advantages and disadvantages of using this approach.

Funding - The cost of implementing the recommendations presented in this report is estimated at $570,000 for the first biennium and $490,000 per biennium there after. This will enable the State to hire a SERC coordinator and roving HAZMAT trainer, purchase first-response kits, improve the HAZMAT data management system and make other improvements.

Four options for funding the recommendations outlined in this report were evaluated: (1) A hazardous materials entry levy for all hazardous material products entering the state; (2) Pollution Liability Insurance Agency Fund (PLIAF); (3) Contractor/vendor licensing fees; and (4) Cost Recovery Levy. New fees or levies are an unlikely option at this time because of the current depressed economic condition of the state, so the hazardous materials levy or PLIAF account are the most likely source of funding the HAZMAT response program upgrade. Since these two accounts are experiencing cuts, implementing the HAZMAT recommendations would require eliminating other program activities.

INTRODUCTION

The purpose of this report is to present and analyze information on hazardous materials[1] response (HMR) capability and reporting in the State of Washington and other designated states. General observations and recommendations are provided to aid the Washington Department of Ecology and other cognizant agencies as described herein in the development of a state-wide standardized hazardous materials incident response and reporting system supported by an equitable and enforceable uniform cost-recovery system.

This study was conducted in response to a 1991 legislative request requiring the Department of Ecology to investigate the need for regional hazardous materials response teams in Washington State. The study was intended to include, but not be limited to, the following items: Review of existing services, determination of where services are needed and the risks of not providing those services, funding requirements, equipment standards, training, mutual aid between jurisdictions, liability and cost recovery. Furthermore, the study was to include a specific recommendation on how to implement regional teams based on geographic location and public exposure.

REVIEW OF EXISTING HAZMAT SERVICES

Emergency response for hazardous material incidents has been provided by local fire departments, Department of Transportation, Department of Ecology, Washington State Patrol and other emergency response personnel. The effective response that the State has enjoyed to date has been the product of the determination of these agencies to share information with each other on an informal basis. It is important to note that the placement of public and private hazardous material response teams throughout the state has never been based on a geographical assessment of needs, but rather on the willingness of local municipalities, agencies and private sector organizations to make a capital investment in response equipment and budget allocations for training and drilling of hazardous material personnel.

Reasons for not establishing a more unified approach are extensive. At present, the cost of creating a properly outfitted and trained team is cost prohibitive for many municipalities. More importantly, however, the perceived need for a more formal agreement has never been realized.

The front line of defense in Washington is the local emergency responder. Quite often, the first person on the scene is a local police department member or the designated Incident Commander. They will respond to an incident, assess the

[1]The term "hazardous material" as used in this report includes oil, hazardous materials, and other harmful substances.

severity of the situation and call upon available resources to meet the need. Depending on the severity of the incident, different classes or levels of hazardous material response teams are necessary for a safe and adequate response.

Hazardous Materials Response Survey - HAZMAT emergency capability in Washington State was evaluated based on the results of a hazardous materials response survey sent to 562 fire departments, and several state and federal agencies. The survey asked questions covering a broad range of issues. For this reason, the results are presented and discussed in the appropriate sections of this report. A copy of the questionnaire including a summary of the survey results is presented in Appendix 1. A great deal of useful information on HAZMAT capability was also obtained from telephone conversations with each county across the State (Appendix 2).

Results - The survey identified 29 public and private HAZMAT response teams which provide A or B level of safety protection for specific regions of the State, or for businesses requiring these specialized skills. These resources are augmented by EPA, Department of Ecology and Washington State Patrol teams that respond statewide. The federal government has additional resources that can be called in from other parts of the country.

Twelve of the teams that responded to the survey considered themselves to be hazardous material response teams, however, they were trained to the Class D level (Recognize and Identify) and would not be able to take an active role in containing an emergency situation. There were also some Class C teams. For the scope of this discussion, only levels A and B will be examined. For reference, the four levels of protection include:

LEVEL A: Fully encapsulated, chemical-resistent suit; inner and outer chemical-resistent gloves, chemical resistent boots/shoes, hard hat, and positive pressure self contained breathing apparatus (SCBA);

LEVEL B: Chemical-resistent clothing, inner and outer chemical-resistent gloves, chemical-resistent safety boots/shoes, hard hat, positive pressure self contained breathing apparatus (SCBA);

LEVEL C: Chemical-resistent clothing, inner and outer chemical-resistent gloves, chemical-resistent safety boots/shoes, hard hat, full-face piece, and air-purifying, canister-equipped respirator;

LEVEL D: Coveralls, safety boots/shoes, safety boots/shoes, safety glasses/goggles, hard hat.

Figure 1 illustrates the approximate coverage available throughout the state of Washington as with many other emergency services, the urban areas; King, Thurston,

Snohomish, Spokane, and Franklin/Benton counties have a fairly complete amount of coverage. Considerable duplication and overlap of jurisdiction is evident along the Puget Sound corridor. In much of the eastern sections of the State and parts of the northern border, basic coverage of hazmat response is limited or non-existent.

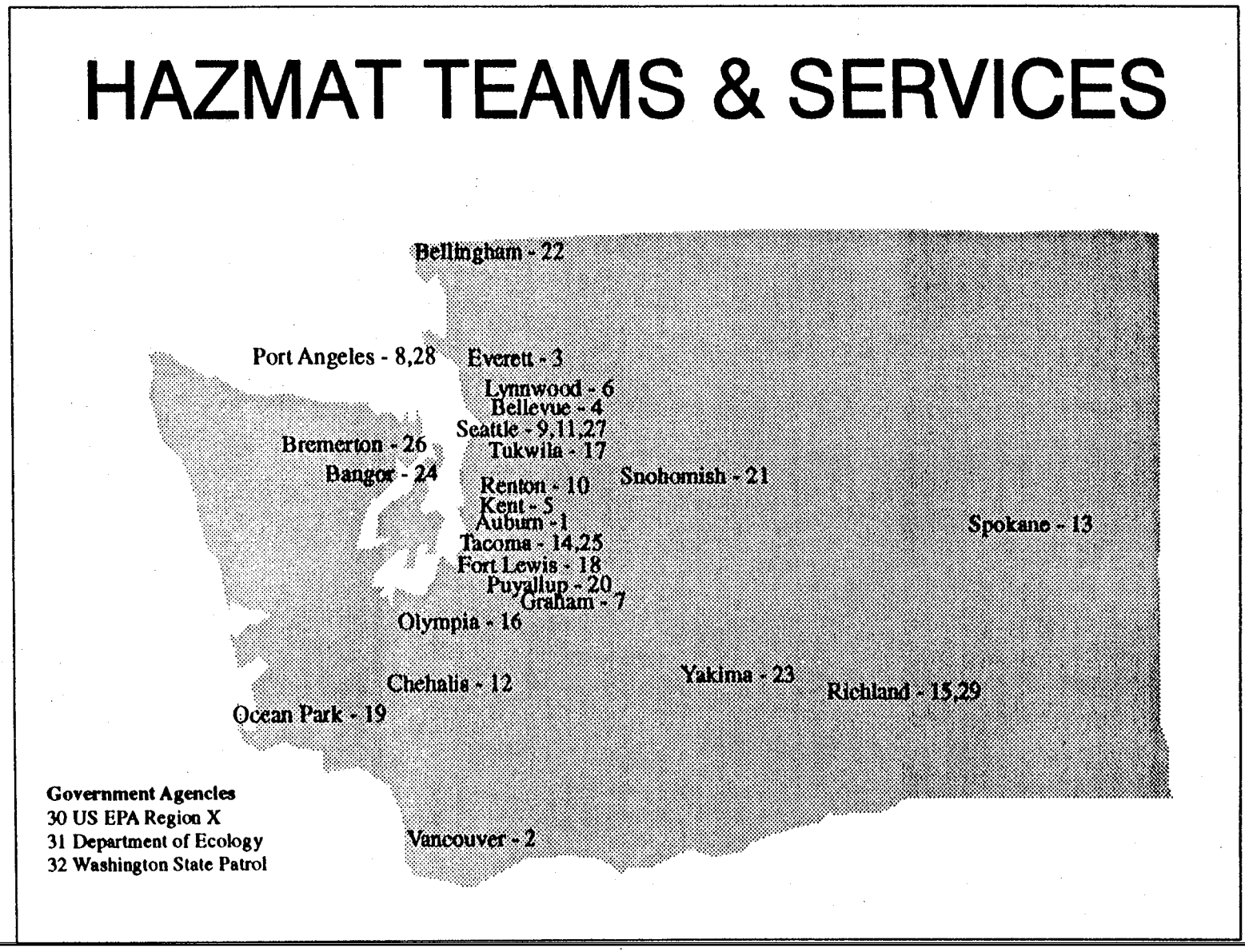
Mutual Aid Agreements - The general rule in the State regarding mutual aid agreements between hazardous material response teams is that they do not formally exist. Many of the successful hazardous material response teams do have interagency agreements with surrounding municipalities, often with a monetary repayment (cost recovery) system in place. Mutual aid systems between hazardous material response units however, are not commonplace in this state. Reasons for this include prohibitive response distances and a feeling voiced by many Fire Chiefs that they have a responsibility to their contract municipalities which prevents them from traveling far from the area they serve. It has also been voiced that if one emergency response team is not able to control an incident, two will not be successful either. As one chief stated, "We are really clean-up crews for a disaster." "We are there to try to keep things from getting worse and to pick-up the pieces." If the team that responds is not able to accomplish these basic objectives, emergency response protocol dictates that state emergency response officials would be the next step in the disaster pyramid.

Informally, most of the hazardous material response teams indicated that they would do whatever possible to assist another team in an emergency situation. Private, company-sponsored teams were particularly quick to confirm this and gave many examples of situations where they voluntarily sent people and resources into an emergency situation where the public sector did not have the ability to respond. Although many company officials did show some interest in the possibility of setting up a contract with their surrounding neighbors, they cautioned that due to resource and possible liability issues, it should not just be assumed that they could continue to provide emergency assistance on a gratis basis. This is a very significant issue in hazardous material public policy.

Professional and Volunteer Fire Departments - The primary role played by the non-hazardous material emergency response firefighter is to informally support the actual HMR team. This is usually accomplished by supplying back-up equipment (buckets, hoses, visqueen, etc.) and sometimes running support outside of the hot zone. This type of support will vary significantly from agency to agency. Cost of supplies will also deviate depending on charge-back policies on expendables and labor.

Public Works, Engineering, Traffic and Water Departments - These agencies would assist the emergency responders by coordinating the shut-off/shut-down of the any necessary gas, electric and/or water supplies as directed by the Incident Commander. They could also assist in the gathering/reading of blue prints and other maps helpful in controlling possible contamination issues. Cost of their participation would almost always be waived as an in-kind service of the municipality.

Figure 1


HAZMAT TEAMS & SERVICES
Bellingham - 22
Port Angeles - 8,28
Everett - 3
Lynnwood - 6
Bellevue - 4
Seattle - 9,11,27
Bremerton - 26
Tukwila - 17
Bangor - 24
Renton - 10
Snohomish - 21
Kent - 5
Auburn - 1
Spokane - 13
Tacoma - 14,25
Fort Lewis - 18
Puyallup - 20
Graham - 7
Olympia - 16
Chehalis - 12
Yakima - 23
Richland - 15,29
Ocean Park - 19
Government Agencies
30 US EPA Region X
31 Department of Ecology
32 Washington State Patrol
Vancouver - 2

Existing HAZMAT Teams and Services

Class A Teams:

NAME	LOCATION
1 Auburn Fire Department	Auburn
2 Clark 5 Fire Department	Vancouver
3 Everett Fire Department	Everett
4 Eastside HAZMAT Response Team	Bellevue
5 Kent Fire Department	Kent
6 Lynnwood Fire Department	Lynnwood
7 Pierce County Fire Protection District 21, 9 & 7	Graham
8 Port Angeles, ITT	Port Angeles
9 Port of Seattle	Seattle
10 Renton Fire Department	Renton
11 Seattle Fire Department	Seattle
12 Southwest Washington	Chehalis
13 Spokane Fire Department	Spokane
14 Tacoma Fire Department	Tacoma
15 Tri-County	Richland
16 Thurston County METRO	Olympia
17 Tukwila Fire Department	Tukwila

Class B Teams:

18 Fort Lewis Fire	Fort Lewis
19 Pacific County Fire Dist 1	Ocean Park
20 Puyallup Fire Department	Puyallup
21 Snohomish Fire County Dist 4	Snohomish
22 Whatcom Co. Fire Protection Dist	Bellingham
23 Yakima Firing Center	Yakima

Each of the below listed military installations have Class A HAZMAT teams:

24 Sub-Base Bangor	Bangor
25 McChord Air Force Base	Tacoma
26 Puget Sound Naval Shipyard	Bremerton

In addition, there are several private HAZMAT teams in the state. All the teams listed below are Class A:

27 Boeing	Seattle
28 ITT/Rayonier	Port Angeles
29 Westinghouse/Hanford	Richland

Government Agencies (access to cleanup contractors):

30 US EPA Region X	Statewide
31 Department of Ecology	Statewide
32 Washington State Patrol	Statewide

Additional federal HAZMAT teams exist at:

US Coast Guard Strike Team — Hamilton, California

US EPA — Edison, New Jersey

Police and Law Enforcement - Although the Washington State Patrol is often the Incident Command leader in an emergency situation, the assistance of local law enforcement is crucial to the success of an emergency response. First, by sheer volume and proximity, they are effective for crowd and traffic control. Also, if the situation warrants, implementation of evacuation procedures. Depending on availability of special training, they can also be of considerable assistance in gathering possible evidence in cases where the source of the incident is not readily clear. The cost of their participation would also be typically waived as in-kind service to the municipality.

HAZMAT Coverage in Outlying Areas - A representative of each county in the State was contacted to see how each dealt with this issue. Many of the rural counties rely heavily on the Department of Ecology to assist in hazardous material incidents. The well repeated steps essentially were these:

1. An emergency responder would come up to (or near to) a hazardous material emergency. This would often be a firefighter although some counties said that their local police would be the first on-scene. They would practice the basic steps of all responders, Recognize and Identify (R&I).

   Depending on the training of this responder, this could be a very dangerous point, as some may drive right up to a site before they realize that they have compromised their safety by being exposed to vapors, smoke, etc.

2. The first responder would follow their training and try to comprehend the hazardous materials that they are dealing with, usually done with binoculars. They would then alert any near-by residents to any imminent dangers associated with the incident. They would also call in to their dispatcher the extent of their knowledge on the incident and await further orders. Without a trained hazardous material team, the next call would go to one of five entities:

   A. A private company, if any could be identified as obviously responsible. (i.e. name on truck that turned over)
   B. Washington State Patrol
   C. Department of Ecology
   D. Nearest known Hazardous Material Response Team (public or private)

The situation would then follow the rules of state-wide emergency response. In most counties, the State Patrol is the designated Incident Command. The local first responder would follow the protocol for awareness level training and try to keep the situation from getting much worse until Incident Command arrived. They then, would assess the situation and call in the appropriate clean-up parties, usually the Department of Ecology or the US Coast Guard. Many, if not all of the counties that rely on the operating procedure expressed some anxiety on its effectiveness in the case of a hazardous material emergency.

In summary, the survey results show that on an incident-by-incident basis hazardous material response has generally been timely and effective throughout the State but there are clear and understandable geographical gaps in service - particularly in rural areas - as well as training and equipment deficiencies constrained by budgets and ongoing regulatory requirements for upgrades in training.

NATIONWIDE SURVEY

Five states were surveyed to obtain information which may be useful in developing recommendations for Washington's HAZMAT Emergency Response Program. A synopsis of the survey results follows:

ARIZONA

The State of Arizona does have enabling legislation which empowers the State through the Hazardous Materials Response Plan to meet needs necessitated by a HAZMAT spill.

Geographical Design - The jurisdiction over a HAZMAT spill is dependent upon where the spill has occurred. Management of the HAZMAT situation and site restoration is the responsibility of the local Emergency Services Director, and involves local law enforcement agencies and local fire departments. The State of Arizona has sponsored and authored the Hazardous Material Response Plan in order to bring a common denominator aspect of administration, management and training to the various units throughout the State.

If a spill takes place on public lands the overview of spill site management is provided by the Department of Public Safety. The Environmental Protection Agency (EPA) provides technical assistance and overseer capabilities to the State.

Response Personnel - In all situations where there is an immediate danger to life and health the provision of a response reaction is by local county personnel. Responsible parties, if identifiable, are directed to make appropriate arrangements to satisfy the needs of the moment, and future provisions.

In the case where the responsible party can not be identified, the State of Arizona has a $50,000 escrow account that can be immediately allocated to provide necessities for the response plan. In the case of a protracted spill, there are additional funds available through other channels.

The Department of Public Safety, a.k.a. Arizona Highway Patrol usually initiates the HAZMAT Response Plan, secures the area of impact, and has control of the area until inhabitants may return to an affected domicile, or, a public road or highway declared safe after the emergency has been resolved by local authorities.

Enforcement Staff and Policy - The Arizona Department of Public Safety has a division which administers Hazardous Material Spill Clean-up Plans. There is an investigative arm of the division which seeks the identity of responsible parties (a routine effort under legal statute).

Finances - The State of Arizona has dedicated State funds for enforcement, administration, and training. HAZMAT training follows the direction of the federal Occupational Safety and Health Administration (OSHA) regulations chapter 29 CFR 1910.120: Hazardous Waste Operations and Emergency Response. The State of Arizona does not train personnel for HAZMAT waste site management. The State of Arizona also receives federal funding through the provisions of SARA Title III.

COLORADO

The State of Colorado does not have Emergency Response legislation which directs resources to a state agency.

Action by the Legislature - The State of Colorado has yet to pass legislation which creates a central authority for response to a HAZMAT spill in the State. The system is fragmented because the legislature (evidently for political purposes) has traditionally allocated resources to local authority. Local authority control of spill response has generated response capabilities to HAZMAT spill incidents.

The State of Colorado does not fund the Emergency Management Unit (the prime respondent in HAZMAT spill reaction), which is located in the Colorado State Health Department, under the Environmental Section. Historically the State had a Division of Disaster Emergency Services (DODES), which reportedly worked fairly well until a recent Governor, unilaterally disbanded the service after dissatisfaction with the DODES reaction to and service in an area of the state which had been struck by a tornado. The DODES organization was a relic of the Civil Defense system of the 1950's, and was identified with the Department of Public Safety.

Under the Federal Emergency Management Agency (FEMA), the Emergency Management Unit receives funding from the Department of Energy (DOE). There are no State of Colorado line item monies directed to a State managed HAZMAT response agency or unit. The State does allocate funding to local response units and authorities. The conservative political persuasion of the legislature and the Governor favors local control of destiny, rather than a state agency management plan.

Geographical Design - There is no notion of regional HAZMAT response teams, either public or private (commercial via contract). Upon receipt of notice that there has been a HAZMAT spill the Office of Emergency Management Unit (Health Department) becomes a quasi coordinator, if local authority cannot, or will not manage the situation. The Health Department has overview/overseer authority, but

does not participate in the local decision making process. No State unit, has any State funding. Because of the environmental attention given the Rocky Mountain Arsenal by DOE, there are federal funds presently supporting the Emergency Management Unit.

The Colorado State Patrol has jurisdiction over HAZMAT spill sites if it is outside the incorporated limits of a city, or in a non-reactive area of a county. Colorado has many square miles of uninhabited land, and these areas get attention by the State Patrol. Local authority has the first response option in the decision making process once a HAZMAT spill has been reported.

Response Personnel - Within an incorporated population area, the local sheriff, police department and local city/township fire departments have jurisdiction over HAZMAT spills. The Incident Commander (IC) may be a local fire department official. There is no established State or local link between public authority and a credentialed commercial unit to clean-up and treat the area under a HAZMAT spill condition. Certainly the State of Colorado has no administrative plan to retain a commercial business for an assignment and award of contract to remediate a spill site.

In order of priority, the IC has responsibility to meet the necessary steps to properly respond to a HAZMAT spill. Small spills, unquantified, have not always been cleaned-up in a reasonable time frame. Much of the clean-up potential depends upon local authority successfully identifying the responsible carrier. Otherwise local funds, employing State aid given them by the legislature, assume responsibility for clean-up.

Enforcement Staff and Policy - The State of Colorado, upon preliminary investigation, seems, by one spokesperson's admission, to be a "jury rigged system." The political pressure to stay away from State agency control of HAZMAT planning from a central location in Denver has been fairly consistent. The rapid division of authority between the State Health Department, the Environmental Health Division, the Emergency Management Unit, the Colorado State Patrol and a large number of local authorities, has served to encumber any meaningful response effort. The absence of State funding for any facet of HAZMAT spill management, has not been found in other states contacted by either written correspondence or telephone interview.

Finances - The State of Colorado does not have a plan to fund a State HAZMAT response unit. No legislation has been proposed which would alter the present method of doing business. What monies that are available for HAZMAT situations go to local authority. There is no methodology or formula understood for the awarding of funds to local governmental units.

Training - Federal monies, through SARA III and Department of Transportation (DOT), with Environmental Protection Agency (EPA) technical assistance has been

sufficient to suggest that a State HAZMAT Training Academy beginning in the near future may become reality. Presently, HAZMAT training is as needed, with qualifications of some local units being randomly obtained with various credentials. Future plans call for a uniformity of training with the model being taken from the National Fire Protection Association (NFPA) 471 and 472 training programs.

Discussion - The State of Colorado does not have one of the more advanced HAZMAT response programs. Additional investigation into specifics would be required if any further statements were to be made. There are states with much better programs. Colorado has a long, arduous political path to travel before their situation gets under control. Perhaps EPA or another federal agency or department will become a deciding factor.

MASSACHUSETTS

The Commonwealth of Massachusetts initiated an Emergency Response Plan-of-Action to Hazardous Material spills in the legislative year 1976-1977.

Action by the Legislature - The enabling legislation is called The Rapid Response Law or, more specifically, the Massachusetts Oil and Hazardous Materials Release Prevention and Response Act (SACT): Massachusetts General Law Chapter 21E.

Essentially, the law permits first responders to proceed with actions which will secure the area, restrict the spread of the hazardous material and begin the sequence of cleanup events to arrest any further contamination of the affected area. The law allows for a "no chase, immediate clean-up authority." Such freedom of action is mandated so the most rapid response may be expedited.

In Massachusetts, administrative control and management of the SACT lies within the Department of Environmental Protection (DEP), which is administratively responsible to the Executive Office of Environmental Affairs in Boston.

Geographical Design - The Commonwealth is divided into four geographic regions. The City of Boston is the North/South divider for the two Eastern regions. The four regions are divisions of the Commonwealth which lie North of Boston, West to Worcester, South of Boston, including Cape Cod, with a Western boundary at the North/South Worcester corridor, an area between Worcester and Springfield, and, the area to the West of the City of Springfield to the Eastern New York State line border.

Response Personnel - Each area has a full time DEP area management specialist, with sufficient staff to be on call 24 hours a day. A telephone response network is coordinated through the radio response capability of the Massachusetts State Police. The regional DEP representative may be reached through a listed telephone number, which has a cellular mobile capacity. The number is manned on a 24 hour basis.

Enforcement Staff and Policy - The Commonwealth has a "Strike Force" of environmental investigators who work on either a random set of protocols, or, pursue viable information to apprehend persons who create the spills and leave a scene without accepting responsibility for the spill. The Strike Force is essentially a silent investigation team, which works in concert with the Commonwealth Attorney General. There are approximately 20 investigators on the Strike Force and they have, historically, prosecuted three or four cases in each year of their existence. Each Strike Force investigator has the authority to apprehend individuals for which there is a warrant for arrest issued by a court of law.

Finances - The prevailing philosophy of the Commonwealth encompasses the idea that Massachusetts will make the polluters pay for spill clean-up. Responsibility can be acknowledged by the liable party, or it can be assigned by the Commonwealth. In either case the persons who are responsible for a spill will be offered an opportunity to initiate a valid, Commonwealth approved, clean-up procedure, with funding being obtained by the answerable party via a private resource.

In a situation where the liable party, for whatever reason, either does not, or cannot, meet the financial commitment to spill site clean-up, the DEP has legislative approval to expend Commonwealth funds to clean a spill, and, subsequent to that action, assign reimbursement costs to the liable party. The idea is to aggressively attend to the emergency matter-at-hand, to remedy an "imminent hazard" and to recoup financial resources in a later time frame.

Response Actions and Personnel - The Commonwealth issues a request for proposals (RFP) on a sequence, usually every two years, to ensure a three year cycle of competent responders. Private firms in the hazardous material abatement and containment industry, licensed by the Commonwealth of Massachusetts, or licensed by other states, which have a reciprocity agreement with the Commonwealth, are sought by the Commonwealth for contractual commitments.

The Commonwealth of Massachusetts issues a Ten (10) million dollar annual bond to cover the cost of hazardous material spill clean-up. It is a rotating fund, with significant dependency upon the ability of the Commonwealth to capture cost of clean-up from the party who created the imminent or substantial hazard. Clean-up monies are treated as a revolving fund.

Costs of clean-up details are associated with the conscious decisions of DEP on-site managers to determine the category of the "emergency". In all situations and circumstances, the actual clean-up is provided by a commercial enterprise which has met the Commonwealth guidelines, has submitted a proposal in which the resources of the enterprise are listed, qualifications of work site personnel are elaborated, engineering equipment and availability are guaranteed, and the financial resource of the enterprise is established.

Discussion - Historically, the Commonwealth of Massachusetts has experienced difficulty in the division between legislative networking and the awarding of contracts to private industry, or, assignment of grant monies to Commonwealth agencies. The Commonwealth, with the establishment of the private enterprise respondent to hazardous material spills, has taken a "hands-off" attitude in the actual clean-up. The only Commonwealth personnel assigned to a clean-up site is the regional representative, who has ultimate authority on the conduct and conclusion of the project.

All clean-up activity is audited by several mechanisms, such that excesses must be defended, otherwise the contracting company stands to loose whatever standing it has in the response schedule of contractors.

There is a rather lengthy and involved legal strategy in the arrangement to recover funds expended in lieu of those of the responsible party. Fiduciary responsibility reaches to the collateral resources of the offending company or carrier, the company insurance coverage and to the resources of the owner/operator of the carrier.

The on-site administrator may commit resources of the Commonwealth to costs which are associated with conscious decisions. The greatest decision which will confront the responders and the DEP administrator/manager is, "What constitutes an imminent hazard", "a substantial hazard," or, a routine clean-up? Previous years of site clean-up have generated an aggrandizement of a situation, and an upgrade of routine to substantial, or substantial to imminent, in order to get Commonwealth monies into the scheme of things.

An imminent hazard must have clean-up engineering initiated within the hour, with the prospect of having the situation arrested or satisfied within 24 hours. From that point, the commitment of Commonwealth monies to any clean-up action, with a lesser pronouncement, is considerably more difficult to finance, unless private monies and/or resources are committed.

The legal arm of the Commonwealth has an excellent record of recovering, expeditiously, clean-up costs from the responsible party. Financial arrangements between the Commonwealth and the carrier can be complex, but are normally satisfied at the Commonwealth level of administration. There is statutory language to force the responsible party to clean-up the subject spill. The integrity of the law has been, and continues to be maintained.

MICHIGAN

The State of Michigan initiated an Environmental Response Act (Act 307) in 1982, with amendments in 1987, 1989 and 1990.

Action by the Legislature - The Act is intended to provide remedy for facilities posing any threat to public health, safety, or welfare, or to the environment, regardless of whether the release, or threat of release of a hazardous substance occurred before, or after, the effective date of the Act. The Act has a retroactive impact on hazardous material spills, and in that regard is treated with the same consideration as the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Because of the historical attention given to prior environmental hazards and spills, there was a movement, though unsuccessful, to have the Act renamed the Environmental Restoration Act.

Environmental response duties rest with the Department of Natural Resources (DNR), the Director of which is cabinet appointed by the Governor of the State of Michigan. Within the DNR there is an Environmental Response Division. The headquarters of the DNR and the Environmental Response Division is in the State Secondary Complex in Lansing.

Geographical Design - As is usually the case, state offices, which are oversight and coordinating agencies, have a history of relying upon regional or county based organizations to control outcomes in local settings. This is the case with the DNR. Upon the occasion of identifying a hazardous material spill, measured in minutes, or one of weeks, months or years, a remediation movement is set into motion on the local level with guidance and resource support from Lansing.

The State of Michigan has three regions which have headquarters in (1) Marquette (for the Upper Peninsula), Region I, (2) Gaylord, Grayling, Cadillac and Saginaw, Region II, and Grand Rapids, Plainwell, Lansing, and Jackson, Region III. The counties which are
contiguous to the Detroit metropolitan area (St. Clair, Oakland, Macomb, Wayne ((Detroit city)) and Monroe) have separate administrative arrangements. They are densely populated urban and suburban complexes.

Response Personnel - Each area has a DNR coordinator. If the DNR determines that there may be an imminent and substantial endangerment to the public health, safety or welfare, or the environment, because of a "release" or threatened release of a hazardous material, the DNR may issue an administrative order which requires a/the person who is initially deemed liable, under the Act, to perform response activity, or to take any other action required by the Act. The Office of Environmental Clean-up contract with individuals who are impartial qualified facilitators, or contract with an organization that can provide impartial qualified contractors, who can resolve any dispute over remedial action plans.

The Director of the Department of State Police is the State Director of Emergency Management in accordance with Act 390, Public Acts (P.A.) 1976, as amended. The Division coordinates the comprehensive emergency management activities of the State and local governments.

Each county has an emergency management coordinator and enabling legislation which has created an emergency management program. Municipalities of 10,000 persons, or more, have also elected to appoint an Emergency Management Coordinator. Coordination is accomplished through a District Coordinator who is assigned to each of the eight Emergency Management Division districts in the State.

Response Procedures - When an incidence which involves a hazardous material occurs, local police and fire services are normally the first to respond. State police will set and maintain a cordon area, if they are, in fact, the first upon a spill scene. The State of Michigan has a large number of rural, remote areas which are transited by automobile, truck and train, and are distant from emergency services in terms of time and mileage.

The local resources determine the scope and magnitude of the situation and determine if additional assistance is needed. If additional agencies become involved, the Emergency Management Coordinator activates an Emergency Operations Center (EOC). If the emergency/disaster is deemed by the chief executive on site, to be beyond the control of local authority, he/she may request that the Governor declare a "State of Emergency". The Emergency Management Division District Coordinator ensures that local resources are exhausted before State disaster funds are used to supplement local efforts and resources. State funds are not used for simple budgetary relief.

Legislative Intent - The Legislation does not legally impose duties or responsibilities upon first responders, it suggests certain concepts that should be integrated into the orientation of a clean-up program. First, the responsibility for the cost of a clean-up should not be placed upon the public. Second, there should be a retroactive application of the Act, except for penalties, for a hazardous material spill. Third, government related environmental and facilities contamination should be treated the same as other sites, as far as the expenditure of public funds. Fourth, enforcement against government agencies should be in the same manner as against any other person. Fifth, prior to spending public funds for a remedial solution, the DNR should secure another funding source that would assure completion of a remedy without interruption.

Finances - The State of Michigan has a fund, managed by the Michigan Environmental Assurance Corporation (MEAC). Through an allocation process, the cost of hazardous material clean-up as well as site remediation is determined by a system of voluntary participation which allows a person, or other responsible party, to pay only their "fair share." This method of satisfying all costs involved with remediation and site clean-up attempts the assignment of "Joint and Several Liability." In determining the reasonable costs for satisfaction of all facets of a site clean-up, there is the possibility that a fair division of costs will not add up to 100 percent of the sum total expenditure. The percentage of the cost which is not attached to a party is called an "Orphan Share." That sum is paid by MEAC.

The Potentially Responsible Party (PRP), also known as owners and/or operators, is advised of his/her/their responsibilities upon the discovery of a hazard material spill or release. The PRP is required to take immediate actions to protect public health, including reporting the release to the DNR within 24 hours. This is applicable upon discovery of a standing environmental contamination site. Such information is considered as disclosure when the property involved is being transferred, and such information must be recorded with the Register of Deeds.

Discussion - The State of Michigan has managed to weave historically contaminated land sites in with the hazardous material spill of the moment. Only the nature of the spill, the size of the spill and the content of the deposit in the environment determines what action is taken and by whom. A true emergency is dealt with much differently that one which has a long standing status.

There is enabling legislation which gives the DNR access to all areas under investigation. There are mechanisms to be applied to gain as much compensation for the State as possible in order to recoup expenditures by various state agencies. There are fines for person/operators who do not partake in the clean-up process when it is clearly defined as their responsibility. The Attorney General may invoke any number of civil actions against a defendant party, and there are lien provisions, four types in fact, with which to gain for the State redress of funding.

There are Sections of the Act which address Joint and Several Liability; Rights of Contribution, Indemnification and Hold Harmless Agreements, Limitation on Natural Resources Damages Liability, and a Covenant Not To Sue An Innocent Purchaser of property which has received either a hazardous material spill, or has been a repository of hazardous materials by a previous owner.

The State of Michigan Act is extensive, it involves virtually every facet of legal practice, numerous state agencies, it is a coordination matrix of some considerable dimension, and it is full of interpretation pitfalls. It is not an easy document to follow and one would hazard a guess that it is an administrative nightmare in the execution of an expeditious resolution to a hazardous material spill.

Certainly there are segments of the law, some specifics of the emergency procedure and elements of the design which may serve our purpose, but an immediate inclination is to either simplify the administrative entanglements, or to create a more straight forward approach to problem solving in the State of Washington.

OREGON

The State of Oregon does have enabling legislation which empowers the State through the Regional Hazardous Materials Emergency Response Team System to meet the needs necessitated by a HAZMAT spill.

Action by the Legislature - In 1989 the Legislature created a Regional Hazardous Materials Emergency Response System through passage of House Bill 3515. With passage of this bill, the State of Oregon and industry, along with local government, acknowledged a shared responsibility for managing hazardous materials emergencies.

The Act directs the State Fire Marshal (SFM) to develop an emergency response system for spills of hazardous materials and toxics using regional HAZMAT teams. The teams are operated by the local government agencies under contract with the State Fire Marshal. Usually the teams are fire departments but often they are partnerships involving fire departments, police and industry. The Fire Marshal coordinates and oversees the program and provides support in areas such as training, medical exams, liability protection, cost recovery, and guidance for developing local response plans. The State Fire Marshall and the local response agencies operate by mutual agreement but the State retains final authority for the program.

Oregon's Community-Right-To-Know Act (ORS 453.307 to 453.414), adopted in 1985, requires that all hazardous substance spills be reported to the Oregon Emergency Response System (OERS), managed by the Emergency Management Department of the Oregon State Police. OERS notifies all appropriate agencies and advises them of the situation. Requests for HAZMAT team assistance are made through OERS or using standard operating guidelines established at the local level. The 24-hour OERS incident reporting number is (503) 378-6377. A total of 421 hazardous substance spill incidents were reported to OERS during 1992.

Geographical Design - In Oregon, the primarily responsibility for handling HAZMAT incidents rests with the local authorities. The regional HAZMAT teams are available for technical assistance when specialized skills, training and equipment are needed to control and stabilize a spill incident. Once the situation is brought under control, the local crew or the Department of Environmental Quality (DEQ) assumes responsibility for the cleanup and disposal.

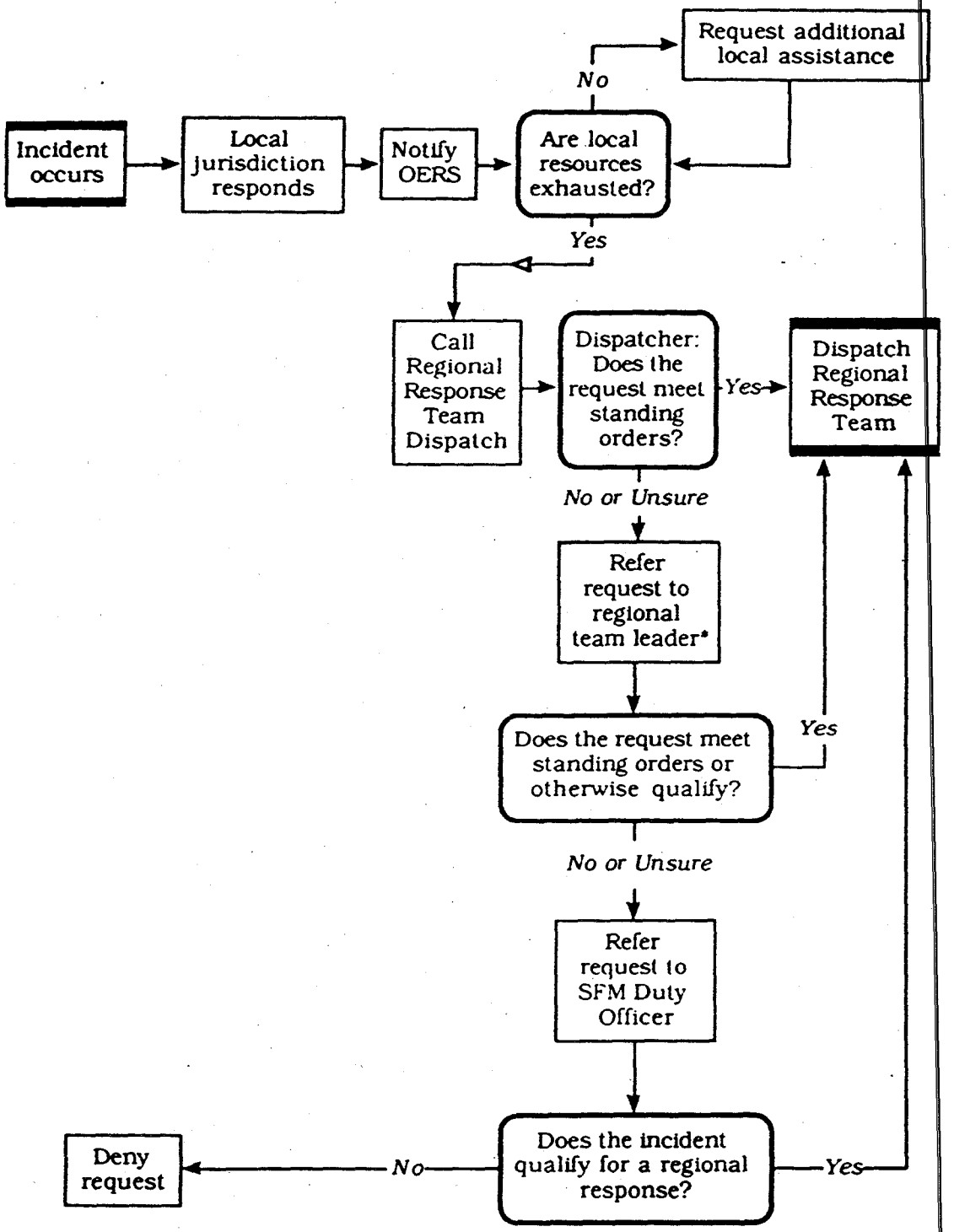
DEQ usually handles both phases of navigable waters spills, emergency response and cleanup, because the HAZMAT teams have limited response capability on water. The HAZMAT teams mainly cover spill emergencies that occur on land or affect small waterbodies.

Oregon is divided into ten regions for the purpose of emergency HAZMAT team response (Figure 2). The goal is to provide emergency response services within about two hours to any area, including the sparsely populated regions in the eastern part of the state. Another goal is to have the teams "out the door" within 30 minutes of notification. Their Regional Response Team Decision Matrix is shown in (Figure 3).

Figure 2
Oregon Hazardous Materials
Emergency Response Team Regions
(Reserved
HazMat 10)
Portland
HazMat 6
Gresham/Multnomah County
HazMat 3
Redmond
HazMat 7
Klamath
HazMat 4
Tualatin Valley
HazMat 9
Linn/Benton
HazMat 5
Eugene
HazMat 2
Douglas/Coos
HazMat 1
Southern Oregon
HazMat 8

Figure 3

Regional Response Teams Decision Matrix



* Team Leader has the option of sending a light assessment team or the full team

The regional HAZMAT teams are dispatched to control and eliminate threats to life, property and the environment from hazardous substances. These substances may be flammable or explosive such as compressed gases, diesel oil, and propane or hazardous materials such as paint thinners, fertilizers, herbicides, acids or glues. The teams are not dispatched unless a reported incident meets minimum response criteria.

The cost of activating a HAZMAT team is high, therefore the teams are used only when the local resources are exhausted or inadequate.

The small number of teams is a continuing area of concern. Since the teams are broadly dispersed, it may take an hour or more to reach an incident when a response of several minutes is necessary. The local responders must rely on their own resources until help arrives. In these cases, the teams are available to provide technical guidance and assistance off-site.

Response Personnel - The ten regional HAZMAT response teams include 14 functional units (some regions are subdivided for efficiency). There are 12 to 30 members per team with 6 to 8 members on duty at any one time. About 200 firefighters are involved statewide. Coordination and support is provided by a staff of two at the State Fire Marshal's headquarters office in Portland. Each regional team in represented on a Team Advisory Group which oversees the program. As a cost cutting measure, in the future the largest teams may be limited to a maximum of 18 people, or 6 per shift.

Enforcement Staff and Policy - The regional HAZMAT teams in Oregon are not involved with enforcement of environmental laws other than there may be occasions when they are called upon as witnesses. The responsibility for enforcement lies with the Department of Environmental Quality.

Finances - The program budget peaked at about $3.2 million per biennium during the development phase when the teams were being formed and new equipment and training were purchased. The allotment has declined to $2 million since that time and is expected to decline further and stabilize at a maintenance level in the $1-1.5 million range per biennium. It costs about $50,000 to $70,000 per year to maintain a regional HAZMAT team not including new equipment.

Funding for the regional HAZMAT teams was originally provided by the Petroleum Load Fee (PLF), assessed at a rate not to exceed $10 when petroleum products are withdrawn from bulk facilities, or imported by a cargo tank or barge for delivery to a storage tank (other than connected to a bulk facility). However, the Attorney General found the assessment to be unconstitutional as a funding source for non-highway responses. Three quarters of the program is now funded by the PLF while the remaining one-forth comes from the State General Fund.

Other sources of funds include a telephone tax (911 emergency number fee) which partially supports the OERS reporting system. The Hazardous Substance Possession Fee (manufacturers, users and storage facilities) provides some support for the awaremess amd operations training programs.

Training - This is a high priority for Oregon's regional HAZMAT team program and this will continue to be the case in the future. Currently, the program supports about 300 firefighters but this number is expected to drop to about 200 in the future. The program includes the following basic training courses:

(1) Awareness and Operations (40 hours) - All responders

(2) Technician (80 hours) - Team members only

(5) Specialist (80 hours) - Team members only

There are annual drills and refresher courses for the teams. Specialty training such as railroad tank cars, hazcatting, and Cameo is provided on a selective basis. The long range goal is to have all team members trained to the A Level of protection.

Discussion - Oregon's regional HAZMAT team emergency response program has gone through a period of growth and development since its inception four years ago. The program is now beginning to stabilize and is considered a success. There have been some problems with cost overruns, primarily because the amount of time required for startup has exceeded projections. The program was envisioned to become fully operational within two years but it has taken four years for this to occur.

A special review group was created to review the HAZMAT team program and provide recommendations for the future. The study findings will be reported to the Legislature. The review group includes representatives from the DEQ, Governor's Office, OSFM, HAZMAT teams, Emergency Management, industry, and other interests. A report will be published in the spring of 1994 and should be evaluated by Washington's SERC.

INCIDENT DATA

Incident data from hazardous materials spill situations is very difficult to compile in this State. The biggest hurdle to overcome is in the understanding of the definition of hazardous material. It is commonly believed that many actual incidents are never reported to local or state authorities. Small quantities of petroleum, fertilizer, pesticide, and other common substances are often spilled by private citizens and "wiped-up" without any thought given to threshold quantities or possible health or exposure issues. This confusion is compounded by state and federal agencies that do not have a set, general definition of a hazardous material. For this study, hazardous materials are broadly defined as:

Liquids, solids or gases that pose an unacceptable or unreasonable risk to human health, the environment or property if spilled or otherwise released

For incident data that has been reported to the authorities, there is another obstacle; the original database created by the State for use by locals such as fire departments was dropped by most responders around 1990, when it was deemed too cumbersome to rely on for storing and recalling historical information. From that time on, most local teams that respond to hazardous material incidents have kept their own data, often on paper and without any formal state-wide agreement as to content. This fractioned approach to data collection has made the state-wide compilation of data very difficult.

Two state agencies currently maintain HAZMAT incident databases, the Department of Ecology and Washington State Patrol. While these agency data bases are not inclusive some valuable information is provided on the location, type, and nature of HAZMAT incidents.

Department of Ecology

The statewide Environmental Report Tracking System (ERTS) maintained by the Department's four regional offices shows that 3,917 spills of oil, hazardous materials and other pollutants were reported to Ecology during 1992:

Table 1. Emergency Spill Reports During 1992

REGION	OIL	HAZARDOUS MATERIALS	OTHER*	TOTAL
Northwest	1,056	531	555	2,142
Southwest	522	271	340	1,133
Eastern	164	81	77	322
Central	161	130	29	320
Total	1,903	1,013	1,001	3,917
%	49	26	25	

*Sewage, mud/silt, dairy wastes, smoke/exhaust, unknown, etc.

Nearly 50% of the spill incidents involved petroleum derivatives such as diesel fuel, gasoline, lubricating oils or waste oils. Hazardous materials accounted for 25% of the spills with some 100 different substances represented, ranging from common

commodities such as vinegar and ethylene glycol (antifreeze) to exotic and sometimes highly toxic chemicals such as PCB's, strychnine and sodium cyanide (Table 2).

Eighty-four percent of the 3,917 spills reported statewide occurred in Western Washington with King, Skagit and Pierce Counties accounting for the majority of the incidents (Table 3). Of the spills in eastern Washington, nearly 50% occurred in two counties, Spokane and Yakima, with the remaining incidents scattered throughout the other counties.

About 25% of the spill incidents reported to the Department of Ecology were considered serious enough to warrant a field response while the remaining reports were handled by telephone or other means.

Washington State Patrol

Hazardous materials incidents reported to the Washington State Patrol are tracked by the Computer Aided Distribution System (CADS) maintained at WSP headquarters in Olympia. A total of 690 HAZMAT incidents were reported to WSP during 1992 of which the majority (76%) occurred in the Puget Sound area (Table 4).

WSP classifies HAZMAT incidents into three categories: Minor, medium and major. During 1992 all but one of the responses by WSP were classified as minor, meaning that the incidents were handled by one patrol unit with the assistance of other WSP units (Table 5).

The WSP and Department of Ecology databases do include some overlap but there are also some distinct differences. The WSP activities focus primarily on highway incidents. While Ecology is often involved in the cleanup and disposal of hazardous materials spilled along the State's highways, the agency's responsibilities for environmental protection and control are broad based and extend to factories, agriculture, forest lands, cities and municipalities, land-use and many other areas.

DATA MANAGEMENT

Every agency and many of the fire districts and HMR units contacted in the survey referred to the use of existing databases such as CAMEO, CHEMTREC, EPA/Toxic Release Inventory (TRI), Environmental Report Tracking System (ERTS), Computer Aided Distribution System (CADS), and poison hotlines. While people 'in the business' are familiar with these resources, a number of suggestions were made for various types of a universal hazardous material database readily accessible to all interested parties. These suggestions included a telephone reporting system, health hazards hotline, insurance underwriting database and other approaches already supported by the federal and state Departments of Health, hospitals, state and federal DOEs and DOTs, and other cognizant organizations.

Table 2. Spills of substances other than oil (hazardous materials, chemicals, etc.) investigated by the Department of Ecology during 1992

Acetone
Acetylene
Alodine
Aluminum Powder/Seal
Anhydrous Ammonia
Ammonium Hydroxide
Arsenic
Arsenic Trioxide
Asbestos
Asphalt Sealer
Calcium Hydroxide
Chlorine
Chlorine Dioxide
Chromium
Chromic Acid
Coal Tar Residue
Cyanide
Degreasers
Detergents
Dichloroethane
Dry Cleaning Solution
Drywall Paste
Duplicating Fluid
Electroplating sludge
Epoxy Resin
Ethyl Butanol
Ethyl Ether
Ethylene Glycol
Ferrous Sulfate
Fertilizers
Fluorescein Dye
Formaldehyde
Freon
Hydrochloric Acid
Hydrogen Chloride
Hydrogen Sulfide
Lead Oxide
Lignin Sulfate
Lime
Lithium Hydride
Mace
Malathion
Mercaptan
Mercury
Methanol
Milk
Mineral Oil
Molasses
Muriatic Acid
Nitric Acid
Grease
Paint (latex)
Paint (oil base)
Paint (waste & solvents)
PCB's
Perchloroethylene
Phenol
Phosphoric Acid
Pinesol
Portland Cement
Potassium Salts
Propane
Polypropylene Glycol
Radioactive Pellets
Raw Sewage
Sodium Hydroxide
Sodium Arsenate
Sodium Cyanide
Sodium Hydrochlorite
Sodium Hydrosulfite
Sodium Hydroxide
Sodium Hypochloride
Sodium Silicate
Sodium Triphosphate
Solvents
Strychnine
Styrene
Styrene Monomer
Sulfur Dioxide
Sulfuric Acid
Tallow
Tar/Asphalt Cleaner
Tetrachloroethane
Toluene
Trace Metals
Trichloroethane
Trichloroethylene
Vegetable Oil
Vinegar
Xylene
Zinc Electrolyte
Zinc Sulfate

Table 3
Emergency Spill Reports by County During 1992

Northwest Region		Southwest Region		Eastern Region		Central Region	
Island	21	Clallam	39	Asotin	5	Benton	63
King	1,241	Clark	139	Columbia	4	Chelan	44
Kitsap	203	Cowlitz	65	Ferry	11	Douglas	6
San Juan	15	Grays Harbor	78	Franklin	29	Kittitas	38
Skagit	457	Jefferson	44	Garfield	4	Klickitat	15
Snohomish	67	Lewis	32	Grant	14	Okanogan	13
Whatcom	127	Mason	46	Lincoln	11	Yakima	132
Unreported	11	Pacific	13	Pend Oreille	12	Unreported	9
		Pierce	422	Spokane	150		
		Skamania	4	Stevens	29		
		Thurston	227	Walla Walla	12		
		Wahkiakum	2	Whitman	14		
		Unreported	22	Unreported	27		
Total	2,142		1,133		322		320
%	55		29		8		8

Source: Department of Ecology 1992 Annual Report

Table 4. Summary of Hazardous Material Spill Incidents Reported to WSP During 1992

District	Diesel	Gasoline	Propane	Other Petroleum Products	*Other Chemicals	**Bombs/ Explosives	Unknowns	Info Report Only	Total
1. Tacoma	26	7	3	6	19	93	12	85	251
2. Bellevue	14	3	1	1	14	5	22	6	66
3. Yakima	4	0	1	0	6	19	4	0	34
4. Spokane	2	0	1	3	6	2	3	2	19
5. Vancounver	18	3	0	1	24	8	13	14	81
6. Wenatchee	8	3	0	3	9	5	3	2	33
7. Everett	18	5	0	3	10	52	9	6	103
8. Bremerton	8	4	1	4	15	51	3	17	103
1992 Total	98	25	7	21	103	235	69	132	690

*INCLUDES

Ammonia
Ammonium Nitrate
Ammonium Hydroxide
Anhydrous Phosphate
Anti-freeze
Asphalt Sealant
Calcium Oxide
Captan
Carbryll (pesticide)
Chlorine Dioxide
Chlorine
Class "B" Poison
Crystal Silica
Ethanol
Ferrius Sulfate
Floor Wax
Hydroflouric Acid
Hypochloride
Lime
Liquid Oxygen
Liquid Sugar
Liquid Nitrogen
Mercury
Mineral Oil
Molten Sulphur
Muratic Acid
Naptha
Natural Gas
Nitric Acid
Paint Thinner
Paint
Potassium Sulfide
Round (herbicide)
Sodium Hydrosulfite
Sodium Hydroxide
Sodium Chlorate
Solvent
Sulphur Dioxide
Sulphur
Tallow
Tar
Toluene
Transmission Fluid
Zinc Ash

**INCLUDES

Blasting Caps
Blk Powder
Bombs
Det Cord
Dynamite
Ether
Explosives
Fire Works
Flash Powder
Fusees
Fusible Links
Grenade
Gun Powder
Hydrogen Peroxide
Mortor Shell
Picric Acid
Pipe Bombs
Shells
Weapons

Table 5. Classifications for Hazardous Materials Spills Reported to WSP During 1992

District	Minor Incidents	Medium Incidents	Major Incidents	Total
1. Tacoma	251	0	0	251
2. Bellevue	66	0	0	66
3. Yakima	34	0	0	34
4. Spokane	19	0	0	19
5. Vancouver	80	1	0	81
6. Wenatchee	33	0	0	33
7. Everett	103	0	0	103
8. Bremerton	103	0	0	103
1992 Total	689	1	0	690

NOTE
Minor: Usually Handled by Available Resources, No Outside Assistance
Medium: Additional Resources, Mutual Aid, Fire Department, Etc.
Major: Catastrophe

In working on the correlation of incident data for this report, it was clear that the integration of incident data with response data and potential exposure estimates would provide an effective means of rapidly and accurately evaluating potential short-term and long-term health and environmental exposure (and countermeasures), response costs, effectiveness and strategies for cost-recovery, public access to address concerns, research efforts and regional hazardous material issues as they arise throughout the State.

A Uniform HMR Database (UHMD) is a viable option for resolving this issue. The database should be established and made resident in all appropriate state oversight agencies. It should be established legislatively for hazardous material incident reporting and supported by a simple, universal incident report format - and be provided as a public resource for HMR service providers, public interest, insurers and underwriters, public and private health care providers and HMR training and teaching organizations. Universal reporting and access to the HMR database should be encouraged through an 800 number and public information program.

To a certain extent, the UHMD would function on the same principle as the more limited EPA Toxic Release Inventory by tracking repeat releases, quantities and other enforcement issues, but would also include data to assist in assessing response costs and HMR team requirements by region.

Long-range toxicological and general health data for human exposure to many toxic and other hazardous materials is the subject of considerable debate in medical, scientific, legal and industrial communities. The HMR database would provide a useful adjunct to long-term latitudinal and longitudinal health studies, and as such, may be a candidate for supplementary funding from federal, state and private research organizations.

EQUIPMENT STANDARDS

The costs associated with equipment needs for a new hazmat team are extremely high. Since the hazmat team must be ready to respond to a myriad of incidents, their trucks and equipment are quite specialized and expensive. These costs are highly exaggerated by product liabilities, insurance and a limited number of vendors. There are few companies and cost competition is rare.

Equipment is the line item for maintaining the HMR team's tools of the trade. This would include reconditioning monitoring equipment, vehicles, breathing packs, etc. It would not include the replacement of expendables such as some types of suits, absorbent pads, visqueen and other one-time use supplies. METRO budgets approximately $15,000 for this yearly expense. Renton spent $13,000. The private HMR teams spent similar amounts for these expenditures with Westinghouse/Hanford allocating around $10,000 per year.

In the category of private responders; Westinghouse Hanford Company stated that they put $265,000 into their equipment start-up. ITT/Rayonier reported $106,000. Public agencies reported a slightly lower outflow of monies with Auburn reporting $80,000 and Lynnwood at $100,000.

The definition of essential equipment may be one of the reasons for the derivation in expenses. All teams would need some of the same equipment, i.e. response truck, SCBA's, PPE, etc. but the quality/quantity of this equipment will vary significantly. Also, especially in the case of Westinghouse/Hanford, their equipment would be geared toward potential problems specific to their target area.

TRAINING REQUIREMENTS

The costs associated with starting a new hazmat team will vary depending on the basis from which the team is created and the extent of expertise required. Most of the current teams that participated in our study were created from firefighters that were already trained to respond to 'normal' events. Training costs then stemmed from upgrading their basic skills from First Responder to Technician or higher. The goal of the hazardous material emergency response unit is to surround and control a situation to ensure the least amount of damage is generated. It is a triage-like evaluation system, first measured in human health, then environmental damage, then cost recovery methods.

The concept of fighting a hazardous material spill is quite different than battling a fire in the respect that it often isn't a tangible danger. It can be a gas cloud, a puddle of liquid or something entirely invisible including radiation. A smart firefighter can think like a hazmat responder but the converse is not true. All of the training to prepare someone to be competent to respond to this type of emergency can be quite expensive. In this region of the country, it can also be difficult to find.

The Auburn Fire Department reported that they paid $20,000 for training capital cost. They have a Class A team. The Lynnwood Fire Department has a Class A/B team. They reported a cost of $7,000. Reasons for the difference in cost are numerous. First, among these is the number of people trained. Training provider fees, student travel, and leave of absence also affect cost. There is no standard fee for training to the Specialist Level. Often, when a team is being formed, there are a limited number of trainer options. Finally, the actual proficiency levels to which responders are trained differ markedly. More people in the Auburn Fire Department have to been trained to the Specialist Status to acquire Class A team status. Each level is sequential and requires knowledge of the level which precedes it. It is not possible to just pay for or start at the Specialist level.

To keep a consistent level of service, HMR teams must attend a training session for a minimum number of hours per quarter or year. These continuing education units (CEU) vary in length depending on the level of training. All the same issues

surrounding training hold true for the CEU. Availability, cost per student, time-off and travel are all listed as a concern. METRO spent $10,000 on their on-going training, Auburn spent $14,000. In direct contrast, ITT/Rayonier spent $42,000, while Westinghouse/Hanford spent $30,000.

There are several reasons for the wide distribution. The most outstanding being with tough city budget years, the public teams spent the minimum amount to keep their teams current with OSHA, and other necessary standards. The private teams enjoy a less critical funding cycle and can often extend more supplemental training opportunities.

STARTUP COSTS

Private and Military

Private companies and military posts share a more comfortable situation on this topic because they usually have stable, ongoing sources of funding. It is considered good business, a good neighbor policy and it enables increased plant confidentiality to have a in-house hazardous material response team. It also simplifies liability issues to have the military post or company's own employees being the emergency responders. It is therefore a challenging but reasonable task to ask for more monies for training and equipment acquisitions. It is seen as preventative maintenance. The team assembled at Sub Base Bangor has been given the nick-name Disneyland by other HMR teams around the State. They truly have an amazing supply of state-of-the-art equipment and training. And, although they have offered to extend their abilities to the surrounding waterways beyond their post, the main objective is to effectively handle any foreseeable emergency that may occur in their domain.

Public

Most of the publicly funded HMR teams reported that all their start-up costs came directly from their municipality's budget. In some cases, it came directly from the City Council's budget, other teams were funded by their city's coffers via the fire department budget. This is the single most important reason why there are so few HMR teams in this state. At a price tag of approximately $120,000, it is almost impossible to explain to non-emergency responders the importance of creating a new team. The exception to this came from the Southwest Regional Hazmat Response Team, who stated that it funded all its start-up costs from subscription fees/interlocal agreements with contracting municipalities. This is a rare and inventive approach to facing the high costs of startup.

ADMINISTRATIVE NEEDS

This is the one area in which much of the equipment and training used in the firefighting operations could be utilized in hazardous material operations.

Commonly, $1,000 was allocated for the necessary changeover costs associated. Many teams showed no administrative costs involved with start-up. It should be noted that since there is no incentive for keeping clear records in this kind of management change, most of these approximations or simple comments were made from memory.

LIABILITY ISSUES

In the transition of hazardous materials management from an annoying compliance problem to a regulated discipline, multiple issues are being addressed ranging from workforce health costs to general comprehensive liability and specific pollution liability exposure and resultant litigation. The original intent of NEPA was to address the issue of liability, as well as environmental and health risks, through proactive means implemented by federal agencies (and intended to be adopted in the private sector). The net result has been to create a *de facto* policy of cost recovery and liability apportionment through seeking the most readily available source of assets, i.e. the 'deep pockets' syndrome.

While specialized forms of liability insurance have evolved for many professions and industrial activities, the reality of the pollution insurance market is that those markets (insurers) willing to underwrite pollution liability are both shrinking in number and imposing increasingly difficult constraints and exclusions for obtaining coverage. An insurer stated that they will provide coverage when there is "no likelihood of risk" and that "the probability of risk, especially when financial exposure is uncertain" was the basis for denial of insurability. From the perspective of our federal and state legal systems, codes and bodies of law, hazardous material releases, exposures and improper handling, transportation, storage and disposal may result in long-lasting and costly civil and/or criminal liability. In this regard, the specific issue and complex nature of hazardous materials handling and response does not differ from other legal attributions of liability.

In one important aspect, however, hazardous material general liability poses a crucial and ominous threat. In conjunction with joint and several liability, pollution violations are not governed or limited by statutes of limitation and may be 'discovered' and litigated decades after incidents or violations occur. In general, legal liability for damages resulting from criminal actions, negligence or civil tort is ultimately assessed through litigation when no agreement can be established between the parties to the suit. Unlike most litigation however, pollution liability exposure survives the death of involved individuals, corporate 'death' through dissolution, bankruptcy or other means of breaking the chain of liability. Despite statutory rulings and established precedents, pollution plaintiffs have, and will continue to have access to the courts in the event of dissatisfaction with resolution of liability and recovered damages.

Responders face standards and potential for personal liability markedly different from private sector business operators or managers. Firefighters and oil spill responders are generally relieved of direct personal liability for their actions (with some exceptions) but those who officially or formally offer their services as HMR professionals acquire a status of possessing special knowledge and may be held to a much higher standard of proficiency in exercising that knowledge - even under Good Samaritan protection.

In discussing direct and consequent liability, it may be useful to re-state the obvious. Legally, what is a 'hazardous material' (HM)? There are over 20,000 liquids, gases and solids listed as hazardous materials under various authorities and agencies. They range from high level radioactives to common cleansers. In one package, common swimming pool chlorine is a consumer product. With a slightly different label in industrial use, it becomes a stringently regulated hazardous material. Who defines the acceptable levels and relative risks of exposure? Biologists, regulators, physicians, chemists, engineers, disposal companies, attorneys and other disciplines have all been involved. Who decides and who can you trust for advice? How can responsible business people protect their employees, their investments, and their bottom line? These are difficult and frustrating questions and issues, but there are answers and solutions for the well-informed business owner who anticipates and plans to minimize risks from the use and disposal of HM. Knowledge, planning and sensible adherence to safety can cut health risks, costs, and exposure to legal liability.

The non-profit US Council on Competitiveness recently found that the US has lost the world leadership and market position it held as recently as ten years ago in one third of all basic industrial technologies. Business leaders contend that this striking finding has far less to do with our technical capability than with the cost of doing business. Yet other industrialized nations with stringent environmental standards <u>are</u> competing successfully in world markets.

What are they doing right? What are we doing wrong? Some say that we are the most law-suit prone society on earth, others insist that government regulations are strangling business, still others point to health and liability insurance costs, and many still insist that union demands and low worker productivity are the culprits for our declining prosperity. And of course, we often hear, "The environmentalists and nature nuts are driving us out of business!" All opinions and perspectives notwithstanding, HMR can only be effective technically and economically utilized if HMR is performed to quantifiable standards. This however includes the automatic assumption of risk and liability for professional, compensated HMR activity.

For HMR participants, there is some protection in the law. Some of these are consistent for public and private sector entities and rely upon adherence to established guidelines for due diligence; for example:

HMR responder/employee[2] responsibilities include:

* coordination & cooperation to minimize or eliminate workplace accidents and hazards
* learning and using safety methods and practices
* offering and implementing safety improvement suggestions
* applying principles of prevention
* utilization of safety and protective devices where necessary or prudent (even if not required)
* maintenance of work equipment, safety equipment and PPE
* timely reporting of accidents, releases and exposures

Courts have ruled against designated hazardous material responders who are employees, even in instances of employer negligence where the employee has failed to use available means of avoiding accidents or exposure. Personal responsibility is the key to retaining HMR responder rights of recovery for damages.

HM User/Employer responsibilities include:

* providing and maintaining a safe, healthy and appropriate work environment
* providing and maintaining a safety and health plan
* providing and maintaining a **site-specific** emergency procedures and response plan and training in plan implementation
* provide and update site-specific ongoing safety and health training as required or appropriate
* Maintain accident prevention and investigation procedures including training, reporting, and evidence protection
* Maintain accurate accident records
* Train and update permanently assigned accident response personnel

Accident prevention and response includes:

* PPE training, drills and maintenance
* accident response and investigation planning
* familiarization with emergency evacuation routes and procedures, locations of PPE and response equipment, locations of potential HM and fire hazards
* permanently assigned health and safety supervisory staff (NOTE: a key issue in litigation has been awareness and preparedness as evidenced by the permanent assignment and regular proficiency training of personnel responsible for implementation of health and safety plans
* scheduled staff reviews and updates on training, procedures, HM, equipment safety, and details of safety procedures

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[2] The terms employee/employer refer to public and private organizations, agencies and individuals.

General Workplace Protection

* HAZCOM - Hazardous Communication standards under "Employee-Right-To-Know statutes and regs.
* Provision of appropriate information and training for specific workplace chemicals and general hazards
* accessible Material Safety Data Sheets and other pertinent records instruction in use, storage and update of MSDS and other records
* placarding, signs, and labeling
* emergency equipment - fire, electrical, disaster

Ultimately, in the private sector, immediate responsibility for the use and control of hazardous materials is in the hands of business community leadership. Regulators advise in the creation of legislation and provide guidance as well as enforcement in HM management but the doctrine of joint and several liability prevails. The private sector can and should contribute to the growing public awareness that commerce and industry are working toward solutions, not delays and coverups with attendant legal consequences.

As an editorial comment, it is important to recognize that WADOE, USDOE, USDOT, WADOT, DNR, NPL, FEMA, TSCA, EPA, OSHA, RCRA, MTCA, FIFRA, fire departments, health districts, water and power utilities... all have a say, even control, over how business and industry manage toxic and hazardous products and wastes. At last count, there were over 45 federal agencies, registries, plans, lists and codes with direct authority over public and private management of HM products, wastes, release incidents and exposures. Business schools and management professionals surveyed are unanimous in their agreement that environmental issues and their current and projected financial impacts are among the most serious and intractable challenges facing US businesses today. Yet, the vague phrase 'hazardous materials' is something we usually think of (when we think of it at all) as a problem for the 'other guy'. It calls to mind oil spills and plant explosions; Love Canal, Bhopal, Chernobyl or Hanford, but not our own office or shop floor. Nevertheless, someone's definition of hazardous material may well represent a primary threat to the survival of any business or profession as well as a direct threat to health and safety. Survival in this instance is defined as the ability to withstand exposure to legal action in the form of lawsuits, injunctions, consent actions, and other means of enforcing hazardous materials regulations. Because of legal interpretation, individuals, businesses and public organizations may remain liable for the actions of past owners, present and future owners or managers, and in extreme cases, individual employees.

The concept of unlimited liability for environmental impairment for all parties responsible - violators, passive participants, contributors, violators and, in certain instances 'innocent bystanders' is defined in law as the doctrine of joint and several liability. It is important to understand that this concept may or may not reflect normal or accepted ideas of fairness in that all contributors as well as all potential beneficiaries of an act or series of acts of environmental impairment may be held

individually (severally), or as a group (jointly), responsible for financial costs and damages of any cleanup costs, health remediation or other impairment.

In summary, knowledge, training and experience are the best barriers to incurring liability but no 'perfect' solution exists. In the private sector HMR decision making is straightforward; cost and profitability are drivers and there are cost trades in selecting methods of hazardous material management in every at-risk industry. Properly used, hazardous materials are an essential part of many services as well as manufacturing businesses.

RECOMMENDATIONS AND DISCUSSION

The principal tool of this project, the HMR Response Questionnaire, was developed with DOE, WSP and DCD discussion. The purpose was to obtain information on HAZMAT response capability at the federal, state, local and private levels; and from other potential responders.

The survey was sent to 562 fire departments, and several state and federal agencies. Approximately 30% or 139+ of those contacted via the questionnaire provided written responses; another 10% or 80 responded through telephone conversations and discussions at conferences, meetings and HM training seminars including; Washington Waste EXPO, King County Solid Waste Division, Tualitin (Sherwood), Washington Fire Protection Policy Board and Fire Training Academy. Response was also recieved through communication with agencies in the states listed in this report. Private sector input, most of which was provided by members of existing paid or volunteer HMR units, was particularly useful in characterizing the potential for private contracting for HMR services in remote areas.

As previously stated in this report, the State of Washington is currently able to handle most hazardous materials spill emergencies in an effective and efficient manner. This success is not by design but the product of the determination of many agencies that work together on an informal basis. For this reason, a change in the basic structure of the program is not recommended. However, there are some weaknesses that need to be addressed in order for the program to provide the level of public safety and environmental protection needed for the citizens of the State.

State Emergency Response Commission (SERC)

Although the three SERC agencies (Ecology, DCD, and WSP) meet regularly at the staff level, the SERC could resolve many of the issues identified in this report if a more formalized organization existed. The SERC was intended to operated in this manner but has not had the resources to do so. The agency directors should meet at least annually to review the status of the program and establish a set agenda. The Hazardous Materials Advisory Committee (HMAC) should be re-convened and provide advise, workgroups and other technical support. The HMAC could help the

SERC develop standards and specifications for all aspects of hazardous materials response as described in this report, including HMR training requirements, equipment standards, proficiency review, response time requirements, health monitoring, cost assessments and recovery procedures.

Another option would be to charge the SERC, under the direction of the Department of Community Development, with the responsibility and authority to develop, standardize and enforce specifications and standards for all aspects of hazardous materials response as described in this report. This should include HMR training requirements, equipment standards, proficiency review, response time requirements, health monitoring, cost assessments and recovery procedures. This approach has been used in other states, and may work for Washington, but would require creating a new management program and would involve additional costs. An attempt should be made to improve HMR capability through the existing SERC structure before fully considering this option.

The SERC should be expanded to include the following departments:

- Ecology
- Transportation
- Community Development
- Agriculture
- State Patrol
- Labor & Industry
- Social and Health Services

Coordination of a standardized response, reporting and data access system can only be achieved via this approach. Informal committees and discussion groups have provided DOE and other agencies with valuable input on hazardous material response management on a case basis, and to a limited extent, for overall supervision, but a formal, standing commission would ensure that the issues identified by this report receive attention.

Recommendation: The SERC membership should be expanded and a SERC Coordinator position should be created at the Department of Community Development. The need is two FTEs at $150,000 per biennium.

HAZMAT Team Certification

Hazardous material releases are generally self-limiting to comparatively small at-risk populations or ecosystems by nature of the chemicals involved in most releases, i.e., petroleum raw materials and distillates. Soil and groundwater penetration of HM can have profoundly damaging and long-lasting effects without immediate, effective remediation. While HMR training levels for responders are established (as noted in the summary observations) a qualification process encouraging competition based on skills, proficiency, equipment inventory and demonstrated readiness would promote and ensure statewide development of HMR capability, and provide a potential source

of revenue for public sector offerors with limited operating budgets, e.g. rural fire districts.

The existing SERC should develop a Request for Qualification (RFQ) to identify, qualify, certify and monitor HMR services and annually re-certify providers/bids from public and private sector offerors. The certification program would apply to HAZMAT Teams used for the cleanup and mitigation phase of a spill response, not first responders.

Recommendation: The SERC Coordinator should develop a HAZMAT Cleanup Contractor RFQ assisted by other SERC agencies.

Privatization of HAZMAT Services

After establishment of qualifications and standards for protection of human health and safety and the environment, the specific issue of statewide HMR coverage on a permanent basis should be addressed. Training and equipment acquisition for appropriate response levels can be more readily justified first, if cost-recovery is a realistic option, and second, if existing HMR units used for mitigation and cleanup can provide contract services on a scheduled reimbursement agreement directly linked to maintaining SERC supervised qualification standards.

The State should examine and encourage the privatization of HMR services through qualification of public and private sector offerors including fire districts and departments, state agencies, consulting engineering and remediation firms, and industrial facilities maintaining permanent onsite HMR teams; this last option particularly for underserved areas of the State. The State should foster HMR services on a qualifications and contract basis to provide for underserved areas and to encourage widely available environmental response capability as an option for small business development throughout the State.

Recommendation: The SERC Coordinator should develop and maintain a list of certified cleanup contractors as part of the RFQ process.

HAZMAT Regions

All state agencies responsible for monitoring, promoting and enforcing regulations pertaining to, or controlling hazardous materials should develop a common regional system to maximize efficient allocation of resources. The regional concept should be based on specific requirements for trained personnel, timeliness, security and other criteria. HMR capability must be based on some statistical criterion of likelihood or geographic need, but must nevertheless be practically available in all areas in the event of immediate threat to safety and health. A practical regional system will provide a means for existing HMR units and bidders to provide HMR services, and effectively calculate resource requirements and response times.

The State should be regionalized for HMR response according either to existing regional protocols, i.e. fire districts, DOE regions (4); or the development of a new region or district system based on assessment and maximization of existing and projected regional HMR capability as determined by SERC (Note: an existing DOE region system covers 4 large areas; other regional systems including WSP are based on specific agency criteria). Similar criteria should be established for the RFP process (including timeliness of response) - in order to ensure timely response as defined by SERC, it is probable that a system of as many as twenty or more units may be necessary.

Recommendation: A SERC workgroup should be created to identify HAZMAT response regions and boundaries.

Communications

The WSP provides the most effective and robust communications system in the State. It can operate independently of outside power and is designed to dispatch response to emergency situations. WSP can also provide estimates of response time, distance and local access to any area of the State as well as any special local features or unique conditions. Most significantly, WSP has the resources and training to independently direct, or assist other agencies in traffic control, rescue, and evacuation in the event of a release.

Recommendation: The WSP should evaluate the feasibility of providing this service and report the findings to SERC.

Incident Command

The Washington State Patrol should be appointed as the command, control and communication (C3) provider for state-wide HMR. This would ensure standardized, universal, robust communications support for the dispatch of HMR units and for direction and enforcement of public safety, security and traffic control in the vicinity of hazardous material incidents.

Recommendation: No action, agency ICS responsibilities are described in the State Master Contingency Plan for Oil and Hazardous Substances Spills.

Equipment

Universal access to first response equipment for low level, low quantity HM releases would significantly reduce both extent and cost of hazardous material releases. HMR education coupled with readily usable materials and equipment would help distribute HMR capability more widely in the HM user community and contribute to reduction of hazardous material exposure and environmental impairment including non-industrial, individual and residential HM releases. While the overall objective of

HM source elimination, minimization and reduction forms the basis for strategic HM response planning, end users at all levels and quantities can play a substantial part in hazardous material release response when given effective education and tools.

Hazardous materials incident first responders at all levels, regulated and otherwise should be encouraged to purchase and maintain low cost 'quick response' kits in types and quantities appropriate to their level of training. For outlying communities, small businesses and operations, costs of these kits are a significant issue. It is proposed that the State provide selected communities in outlying areas with initial response kits.

Recommendation: The Department of Ecology should purchase and distribute spill kits to first responders in remote areas of the State. The need is $70,000 for the first biennium and $40,000 per biennium there after.

Training

Local response organizations such as fire departments, police, public utilities, or the Washington State Patrol are nearly always the first responders to HAZMAT incidents. It is extremely important that these people receive awareness training to the recognition and identification level.

The oversight committee for this report has proposed a roving trainer system similar to train-the-trainer programs in industry - such an approach would enhance ongoing communication and education among agencies, industry and HMR teams and would allow for continuous improvement in training and practices.

The Washington State Patrol currently provides such training through a grant from the federal Hazardous Materials Transportation Uniform Safety Act. So far about 300 fire fighters and highway patrolmen have received the 8-hour "Hazardous Materials, First Responder Operations Level Washington State Fire Service Training Course (National Fire Academy Curriculum)". Some higher level courses are offered as part of this training exercise.

Recommendation: The Washington State Patrol should hire a full-time roving trainer to provide ongoing awareness and identification training for first responders. The need is two FTEs at $150,000 per biennium.

Data Management

Every agency and many of the fire districts and HMR units contacted in the survey referred to the use of existing databases such as CAMEO, CHEMTREC, EPA/Toxic Release Inventory (TRI), and poison hotlines. While people 'in the business' are familiar with these resources, a number of suggestions were made for various types of a universal HM database readily accessible to all interested parties.

These suggestions included a telephone reporting system, health hazards hotline, insurance underwriting database and other approaches already supported by federal and state organizations. While reviewing the incident data for this report, it became clear that the integration of incident data with response data and potential exposure estimates would provide an effective means of rapidly and accurately evaluating HMR issues. These issues include health and environmental exposure (and countermeasures), response costs and effectiveness and strategies for cost-recovery, public access to data, and research efforts, as they arise throughout the State. To a certain extent, the UHMD would function on the same principle as the more limited EPA Toxic Release Inventory by tracking repeat releases, quantities and enforcement issues but would also include data to assist in assessing response costs and HMR team requirements by region.

A Uniform HMR Database (UHMD) should be established and made resident in all appropriate state oversight agencies. Participation should be required by the legislature and the system should have a simple, universal incident report format. The UHMD should be a public resource for HMR service providers, public interests, insurers and underwriters, health care providers and HMR training and teaching organizations. Universal reporting and access to the HMR database should be encouraged through an 800 number and public information program.

Recommendation: $200,000 should be appropriated to the Department of Ecology for the purpose of developing and maintaining a unified HAZMAT incident data base for the State. This includes $150,000 (2 FTE's) per biennium to develop and maintain the program and $50,000 for contracted services during the first year.

Liability

As outlined in the discussion of immediate and long-term liability for HM response, the issue of joint and several liability directly impacts 'unofficial' response to HM releases. Statewide promulgation of effective Good Samaritan provisions would provide for enhanced response in more remote areas as an adjunct to contracted or public agency response.

The State should enact or strengthen the existing 'Good Samaritan' act to better protect qualified HMR responders providing services in emergency situations where designated HMR units cannot respond in a timely manner - provisions of this act would include 'hold harmless' status for service provided in good faith, compensation for actual costs and indemnification for costs of legal defense and damages incurred while acting in good faith.

Recommendation: A SERC workgroup should be created to evaluate the 'Good Samaritan' statute and recommend improvements as needed.

Cost Recovery

Cost recovery is currently applied at the agency level. A unified cost recovery (UCR) system would improve the rate and cost of collection by providing a mechanism to assess costs and damages of hazardous material releases, including a standard cost formula based on types and quantity of materials, personnel time, material costs and remediation costs. The UCR formula for cost recovery would be based on response data and cost analysis accumulated in the UHMD. Response costs for individual responses would be reviewed by SERC to establish and periodically modify the cost recovery formula.

The proposed Uniform Cost Recovery system could be developed by SERC and operated on an inter-agency basis under OFM supervision.

Recommendation: A SERC workgroup should be created to fully evaluate the advantages and disadvantages of using this approach.

FUNDING OPTIONS/SOURCES

The cost of hiring a SERC coordinator and roving HAZMAT trainer, purchasing first-response kits and improving the data management system is estimated at $570,000 for the first biennium and $490,000 per biennium there after. A brief discussion of funding options follows.

Four options for funding the recommendations outlined in this report were evaluated:

A. A State HM Entry Levy for All HM Products Entering the State - This would be similar to the petroleum products entry levy currently funding the Pollution Liability Insurance Agency (PLIA). Currently surcharges, taxes and special transportation fees are imposed on a wide variety of materials. The uniform HM levy would be applied on state entry and/or in-state manufacturing of all materials prior to re-sale. It could be based on USDOT P 5800.5 HM materials categorization and on a formula using cost and value (or value added) of the material and the calculated cost of TSD and/or recycling.

B. Pollution Liability Insurance Agency Fund (PLIA) - Potential revenue sharing with PLIA could be determined by the revenue and expenditures for HM responses. This is a legislative issue and, if proposed, will largely be examined in view of the major preponderance of petroleum products both as sources of revenue as the primary source of over 2/3's of reported HM incidents, and as over 95% of HM products by quantity of release, cost of response and cleanup.

uninformed technical approaches and efforts at UST remediation. It is appropriate to require cost recovery for development and SERC supervision of HM contracting and service provider licensing through an application and inspection fee. This fee could be based on annual contractor revenues and would first be applied to vendors and contractors to the State. Eventually it would be extended to all private sector hazardous material service vendors and contractors operating in the State.

D. Cost Recovery Levy - A levy or surcharge could be applied to costs recovered for hazardous material incident response. Unified Cost Recovery would be a refinement of the existing cost-recovery process and would be administered through SERC, OFM and the State Attorney General office.

APPENDICES

APPENDIX 1: HAZMAT RESPONSE SURVEY QUESTIONNAIRE AND RESULTS

APPENDIX 2: INFORMAL HAZMAT RESPONSE STUDY RESULTS BY COUNTY

APPENDIX 3: HAZARDOUS MATERIAL SURVEY RESPONSE CAPABILITY TABLE

APPENDIX 4: MUTUAL AID INFORMATION

APPENDIX 5: CAPITAL AND OPERATIONAL COST INFORMATION

APPENDIX 6: FUNDING SOURCES AND BUDGET

Survey Results

Introduction
The Hazardous Material Response Survey was sent to every fire chief in the state of Washington. The list was supplied by the State Fire Chiefs Association. Of the 562 chiefs which received the survey, 135 responded. This is a response rate of 24 percent. A copy of the Questionnaire is attached. The following is the results of the data from the survey.

The first two questions were to ascertain the name, address, contact name and other essential information of the responder. The response rate of the opening questions was 100 percent of those who answered.

The purpose of the third question was to separate out the responders according to their ability to respond to a hazardous material incident. It also served to check if the person filing out the questionnaire had an understanding of what they were being asked in regards to level of response. The first part of this question had a 96 percent response rate, 17 percent said yes and 77 percent said no and 6 percent said yes but through other sources it was discovered that they actually could not.

The second half had an overall response rate of 13 percent with 5 percent stating Class A, 4 percent stating Class B and 3 percent stating Class C.

Question four checked into the issue of mutual aid agreements. It had an overall response rate of 21 percent. Sixteen percent said they were participating in a mutual aid agreement and 4 percent said they were not.

The responders of this questionnaire that answered negatively to question three were asked in the directions to stop at the end of the first page and return the questionnaire at that point. Since this was intended to be a snapshot of the current level of understanding of hazardous material response in the state, the specialized questions in the rest of the survey would only be of use if the department responding actually had a degree of expertise in hazardous material response. This is believed to be the reason for the low response rates to the rest of the questions.

Question five A, B, and C asked the respondent to give financial information on the start-up costs of their team. The overall response rate was 7 percent. The answers ranged reflected the following range:
Training: $1,300 to $20,000
Equipment: $1,200 to $265,000
Capital Cost including facilities: $6,000 to $265,000

Question Six A, B, and C asked for the same type of information regarding their operations and maintenance. The response rate was again 7 percent. The following range of answers were reflected:
Training: $3,600 to $42,000
Administrative: $0 to $35,000
Equipment: $1,500 to $17,000

Other miscellaneous expenses were overtime, expendable equipment physicals, etc.

Question seven asked what source of funding was used to finance start-up costs. The response rate was 10 percent. The answers were: city budget, federal government, private funds, fire department budget, subscription in service, and local private funds.

Question eight asked for the source of the team's ongoing funding response rate was 10 percent. The answers were the following: federal government, fees, city budget, membership dues, and own budget.

Question ten A and B dealt with the essential equipment inventory of the team.s Response rate was 9 percent. Many lists were quite extensive.

Question eleven A and B asked the respondents to explain the level of training their team had received and whether they felt more was necessary or not. Overall response rate was 11 percent. Once again the lists were quite extensive.

Twelve, the final question asked about the issue of getting liability insurance. The overall response rate was 9 percent. The range was from the good samaritan law, to fire department insurance to city or federal government to self insured to actually not insured.

Incidental Data Questionnaire
Of the 562 chiefs asked to respond to this request for information on hazardous material incidents in their response area in the last four years, only 28 responded, (5%). The range of answers was quite broad, from "none" to a full listing of every incident as copies from their department's response log, numbering in the hundreds.

Washington State Hazardous Material Response Survey

Response Team Questionnaire

Thank you for taking the time to answer this questionnaire.
These answers will be instrumental to examining the process of hazardous material response in the state of Washington. If you need more room than is allotted for the answers, please attach additional paper.

If you have any questions, please contact Margaret Kavanaugh at (206) 763-5132.

NAME OF AGENCY:
NAME OF CONTACT:
TITLE:
PHONE:
DATE:

1. What is the location of your administrative offices, storage yards, and team and equipment deployment areas?

2. What are the geographic boundaries of your response team?
(PLEASE INCLUDE MAP AND LEGAL DESCRIPTION WHERE POSSIBLE)

Square Miles: Predominant type of land use:

3. Does your team currently have any hazardous material response capability?

Yes No

If yes, what type or level of service does your team provide?
(Class A, Class B, Class C, etc.)

4. What (if any) mutual aid agreements or reciprocity does your team participate in?

5. Can you approximate capital start-up costs associated with your team? Please break down the costs into the categories listed below:

5A. Training: $_____

5B. Equipment: $_____

5C. Capital Cost including facilities: $_____

6. Can you approximate operations and maintenance costs (ongoing O&M) of your response capability?
Please break down the costs into the categories listed below:

6A. Training: $_____

6B. Administrative: $_____

6C. Equipment: $_____

6D. Other: (please specify)

1. _____ $_____

2. _____ $_____

7. What sources of funding did you use to finance your start-up costs?

8. What are your principal sources of ongoing funding?

9. What is your agency or team's annual hazardous material response operating budget?

10. What do you consider to be the essential equipment inventory needed for your team to ensure adequate hazardous material response and to operate in a safe and effective manner?

10A. *Does any of your current equipment not meet your needs* because of design or reliability factors - if so, please describe:

10B. What equipment have you evaluated which you would recommend for inclusion in standard hazardous material response equipment inventories? Why?

11. What levels, types and durations of hazardous material response training are currently required of your hazardous material response staff?

11A. What are your requirements for training upgrades, refreshers, continuing education (CEU)?

11B. What additional requirements would you include or remove from the requirements for training? Why?

12. What provisions for legal and/or financial liability exist for your team?

Washington State Hazardous Material Response Survey

Incident Data Questionnaire

Thank you for taking the time to answer this questionnaire. Please supply all pertinent information that is available from your records. These answers will be instrumental to examining the process of hazardous material response in the state of Washington.

For your convenience, you may simply copy all the appropriate paper files.
If your records are already on computer disk, please just make a copy of the disk.

If you have any questions, please contact Margaret Kavanaugh at (206) 763-5132.

NAME OF AGENCY:
NAME OF CONTACT:
TITLE:
PHONE:
DATE:

1. To the extent possible, list the number and general type (petroleum, toxics, unknown materials) of hazardous-material responses that occurred in your response area during the last four years - (1989-1992).

2. Please provide the following information for each incident in 1991:

   -Source and nature of the complaint.

   -Distance of incident from hazardous-material response station.

   -Was there any mutual aid assistance; if so, what company and are they public or private sector?

   -What hazardous material(s) was involved?

   -Were MSDS's available?

   -What was the estimated quantity of the release/spill?

   -What was the apparent cause of the incident?

   -What was the source of the hazardous material?

   -What type of emergency was declared (if any)?

Informal Haz-Mat Response Study Results - by County

The information listed below is a reflection of phone conversations with contacts in each county across the state.

Adams including the City of Othello:
The contact reported that the county has no haz-mat response capability. They have all volunteer departments. Personnel training was given as the chief reason for their lack of response capability. Money was the second reason listed. In case of an incident, they contact Spokane (120 miles), Yakima (70 miles) or (100 miles) Wenatchee.

Asotin including the City of Clarkston:
This county has no haz-mat response capability. In case of incident, they contact the Washington State Patrol or Potlatch Forests, Inc. Spokane is the nearest response team.

Benton including the cities of Hanford and Richland:
City of Hanford has A & B level response teams, but offer no statewide response.
City of Richland has A & B level response, also no statewide response available.

Chelan including the City of Wenatchee:
This county has no haz-mat response capability. Money and liability were cited as the main reasons for this problem. In case of an incident, the Washington State Patrol is contacted. The nearest response team is in Yakima.

Clallam including the City of Sequim:
City of Port Angeles/ITT has A & B level response with no statewide response available. The City of Sequim has no response capabilities.

Clark including the City of Vancouver:
Clark 5 Fire District was contacted. A & B response levels are maintained and are available for statewide if requested.

Columbia:
No haz-mat response capability. All their fire departments are volunteer. Not interested in being able to respond to haz-mat. They depend on Spokane fire departments for this coverage, via Washington State Patrol. They are approximately two and one half hours from Spokane.

Cowlitz including Longview and Kelso:
No haz-mat response capability. The majority of their fire departments are volunteer. Would like to have response capability, but restricted by money. They call Washington State Patrol and Dept. of Ecology when an incident occurs in the county.

Douglas including Bridgeport:
Bridgeport #7 is the contact in this county. No haz-mat response capability. All their fire departments are volunteer. Washington State Patrol is contacted in case of incident.

Ferry including the City of Republic:
No contact was available. Surveys mailed to fire chiefs.

Franklin including the City of Connell:
Tri-county Fire Department (FD #5, Burbank Fire Department in Pasco) has team level A & B response. Money is a continuing concern. They are all volunteer. The point of contact in this area is still the Washington State Patrol and Department of Ecology.

Garfield including the City of Pomeroy:
This county has no haz-mat response capability. The reasons of money and training are the deterrents listed for the problem. In case of incident, Lewiston PFI are contacted, they are forty minutes away.

Grant including the City of Moses Lake:
They have a county haz-mat committee, but no haz-mat response capability. They have a number of industries in the county, including ASME, Western Kraft, Wilbur-Ellis. No discussion of private teams. Money is chief obstacle to creation of team. In case of incident, Washington State Patrol, Department of Ecology in Yakima and CHEMTREC are contacted.

Grays Harbor including Aberdeen:
They have no haz-mat capabilities in this county. Money was stated as the main prohibiting factor. Incidents are reported to the Washington State Patrol and the Department of Ecology.

Island County including Oak Harbor:
Contact at Oak Harbor Fire Department stated that they have some response capability. Any significant incident would be attended by the Naval Air Station response team, including oil spills.

Jefferson including the City of Port Townsend:
The contact at Port Townsend Paper said that they have six technicians and two specialists. In cases of incident, the Washington State Patrol are notified. The City of Port Townsend was also contacted, they have no response team.

King County - Auburn
They have haz-mat response capability at the A & B level. They would respond statewide if requested.

Skamania including Stevenson and Washougal:
No response given. Surveys mailed to fire chiefs in the county.

Snohomish including the City of Everett:
Contact stated that they have A & B response level capabilities but would not respond statewide if asked to assist.

Spokane including the City of Spokane:
Contact stated that they have A & B response level capabilities and would respond statewide if asked to assist.

Stevens including the City of Colville:
This county has no haz-mat response capability. Training and money were listed as the major problem for establishing a higher level of response. In case of incident, they contact CHEMTREC, ALCOA, and Burlington Northern.

Thurston including the cities of Lacey and Olympia:
The contact in Fire Department #3 said that coverage in this county is supplied by a network of eight or nine teams including members in Lewis County. There are response teams in Olympia.
FD #3 (Olympia, Tumwater, and McCleary) and Metro. Money is an issue.
Washington State Patrol and Department of Ecology are both contacted in the event of an incidence. Metro will not supply statewide if asked to assist.

Wahkiakum including the City of Cathlamet:
No response was given. Surveys were mailed to fire chiefs in the county.

Walla Walla including the City of Walla Walla:
This county has no haz-mat response capability. Liability, money, and training were all stated as deterrents to a higher level of response. Wilbur-Ellis, a company which makes farm chemicals has a location in this county. No mention of private response capability. Benton, Franklin, and Walla Walla have a regional agreement for responses on the Snake River.

Whatcom including the City of Bellingham:
The contact stated that they have no haz-mat response capabilities. Money was stated as a serious limitation to the level of ability. In case of incident, Washington State Patrol is contacted.

Whitman including Washington State University and the City of Pullman and Colfax:
WSU will only respond on campus. Due to liability issues, they would give only technical assistance to other jurisdictions. In case of emergency, they contact the Washington State Patrol and City of Spokane. The cities of Pullman and Colfax have no haz-mat response capability. In case of an incident they contact the Washington State Patrol, Rohrtech and the Spokane Fire Department.

Yakima including the City of Yakima:
The contact stated that they have A & B level of response available. They would respond statewide if asked to assist government events.

King County - Bellevue
They have haz-mat response capability at the A & B level. They would not respond statewide if requested.

King County - Kent
They have haz-mat response capability at the A & B level. They would respond statewide if requested.

King County - Sea Tac
They have haz-mat response capability at the A & B level. They would respond statewide if requested.

King County - Renton
They have haz-mat response capability at the A & B level. They would not respond statewide if requested.

King County - Seattle
They have haz-mat response capability at the A & B level. They would respond statewide if requested.

King County - Tukwila
They have haz-mat response capability at the A & B level.

Kitsap including the City of Bremerton:
They have haz-mat response capability at the A & B level. They would respond statewide if requested, with Commander approval.

Kitsap/Sub-base Bangor:
They have haz-mat response capability at the A & B level. They might respond statewide if requested, with Commander approval.

Kittitas including the City of Cle Elum:
They have the ability to respond to a limited oil spill emergency. Liability and money are creating limitations to their level of response capability. In case of incident, they contact the Department of Ecology.

Klickitat including the City of Bingen:
No verbal response available. Surveys mailed to fire chiefs in the county.

Lewis including the City of Chehalis:
They have haz-mat response capability at the A & B level. They would respond statewide if requested.

Lincoln including the City of Sprague:
The contact at Fire District #1 stated that they have no haz-mat response capability. They are all volunteer unit. In case of incident the Washington State Patrol is contacted.

Mason including the City of Shelton:
The contact stated that there is no haz-mat response capability available. There is a truck that can be used in the event of gas and oil spills. Simpson Timber which resides in the county has its own response team. In case of incident the Washington State Patrol and Department of Ecology are contacted.

Okanogan including the City of Okanogan:
The contact stated that they have no haz-mat response capability, with the exception of a minor ability to respond to an oil and gas spill. They are all volunteer unit. In case of incident the Washington State Patrol is contacted.

Pacific including Ocean Park:
They have a level B haz-mat response capability. They would not respond statewide if asked to assist.

Pend Oreille including the City of Cusick, Metaline, Metaline Falls, and Newport:
There is no haz-mat response capability in this county. If there is an incident, the City of Spokane is called for assistance. Money and training limitations were given as limitations.

Pierce - Tacoma Engine 6:
Contact said that they have A & B level response capabilities and a truck, rescue van and all the usual supplies. Many of pieces of equipment were donated by insurance companies. For any extra help, they can call on McChord or Ft. Lewis. They would respond statewide if asked to assist.

Pierce - Ft. Lewis
A & B level response teams are available at the base. They would respond statewide if asked to assist.

Pierce - McChord
A & B level response teams are available at the base. They would respond statewide if asked to assist.

San Juan including Friday Harbor:
They have no haz-mat response capabilities.

Skagit including Mount Vernon:
They have no haz-mat response capabilities.
In case of an incident, the County's Emergency Management Coordinator is contacted, then the Department of Ecology.

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

APPENDIX III

Name of Agency	Admin City	Response Capability	Level of Service
Adams County Fire Protection District	N/A		
Alger Fire Department Skagit #14	Alger	R&I - Absorbent Pads	
Asotin County Fire Protection District	Clarkston	No	
Auburn Fire Department	Auburn	Yes	Level A
Bay View Fire Department District #12	Bay View	No	
Bellingham Fire Department	Bellingham	No	
Benton County Fire District #6		No	
Centralia Fire Department	Centralia	No	First Responder
City of Edmonds Fire Department	Edmonds	No	
City of Fircrest Fire Department	Fircrest	No	
City of Port Townsend Fire Department	Port Townsend		
City of Ritzville Volunteer Fire Department	Ritzville	No	
City of Shelton Fire Department	Shelton	No, but they said yes.	R&I Only
City of Sunnyside Fire Department	Sunnyside	No	
City of Vancouver Fire Department	Vancouver	No	
City of Woodland Fire Dept./Clark Co. #	Woodland	No	
Clallam County Fire Protection District	Sequim	No	
Clark County Fire District #6	Vancouver	No	Awareness and Operations
Clark County Fire District #9	Camas	No	
College Place Fire Department	College Place	No	
Cosmopolis Fire Department	Cosmopolis	No	
Cowlitz Fire Protection District #7	Ariel	No	

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

Name of Agency	Admin City	Response Capability	Level of Service
Creston Volunteer Fire Department #7		No	
Darrington Fire Department	Darrington	No	
Dayton Fire Department	Dayton	No	
Eastside Hazmat Team/Bellevue Fire St.	Bellevue	Yes	Technician/Specialist
Electric City Volunteer Fire Department	Electric City	No	
Ellensburg Fire Department	Ellensburg	R&I Only	Class D
Enumclaw Fire Department/KCFD #28/R	Enumclaw	No	
Ferndale Fire Department	Ferndale	No	
Ferry County Fire Protection District		No	
Franklin County District #3	Pasco	Yes	Class C
Friday Harbor Fire Department	Friday Harbor	No	
Garfield County Fire District #1	Pomeroy	No	
Grant County Fire District #8	Mattawa	No	
Grays Harbor Fire District #1	Oakville	No	
Grays Harbor Fire District #10	Grays Harbor	No	
Grays Harbor Fire District #2	Aberdeen	No	
Guemes Island F.D./Skagit Co. FPD #17	Guemes	No	
Island County Fire District #5	Whidbey Island	R&I Only	
Island County Fire Protection Dist. #3	Langley	R&I Only	
Issaquah City Fire Department	Issaquah	No	
ITT Rayonier Hazmat Team	Port Angeles	Yes	Level A
King County Fire District #10	Issaquah	No	
King County Fire District #16	Bothell	No	First Responder Only
King County Fire District #20	Seattle	No	First Responder

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

Name of Agency	Admin City	Response Capability	Level of Service
King County Fire District #38	North Bend	No	
King County Fire District #43	Maple Valley	No	R&I Only
King County Fire District #44	Auburn	No	R&I Only
Kitsap County Fire District #1	Silverdale	No	
Kitsap County Fire District #15		No, but they said yes	First Responder
Kitsap County Fire District #2	Bainbridge	No	
Kitsap County Fire Protection District	Kingston	No	
Kitsap Fire Protection District #14	Hangville	No, we assess the situation and call the state resources	
Kittitas County Fire District #3	Easton	No	
Klickitat County Fire District #1	Trout Lake	No	
Lakewood Fire Department	Tacoma	No decontamination only	
Lewis County Fire District #10		No	
Lewis County Fire District #12	Centralia	No	
Lewis County Fire Protection District	Towns of Doty, Meskill	No	
Lincoln County Fire District #1	Sprague	No	
Lincoln County Fire District #4	Reardan	No	
Lincoln County Fire District #6		No	
Lincoln County Fire District #9			
Longview Fire Department	Longview	No	
Lummi Island Fire Department #11	Lummi Island	No	
Lyndon Fire Department	Lyndon	No	
Lynnwood Fire Department	Lynnwood	Yes	Class A, Class B
Marlin Fire Department	Krupp	No	

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

Name of Agency	Admin City	Response Capability	Level of Service
Mason County Fire District #1	Hoodsport	No	R&I except for chief-operator
Mason County Fire District #4	Shelton	No	
Mason County Fire Protection District		No, but they said yes	R&I Only
Mason County Fire Protection District	Allyn	No	
Monroe Fire District #3	Monroe	No	
North Bend Fire Department		Yes, will respond to extinguish fires involving fuel. Identify placarding and if required call for assistance on hazmats.	
Oakesdale Farmington Fire District #10	Oakesdale	No	
Ocean Shores Fire Department	Ocean Shores	No, but they say yes	Awareness Level
Okanogan Fire Department		No	
Okanogan Fire Department #2		No	
Olympia Fire Department Metro	Olympia	Yes	Class A
Omak Fire Department	Omak	No	
Orting Fire Department/Pierce County	Orting	No	
Pacific Fire Department	Pacific	No	
Pateros Fire Department	Pateros	No	
PCFD #12		No	
Pierce County #26		No	
Pierce County Fire Department #15	Eatonville	No	
Pierce County Fire Protection District	Anderson Island	No	
Port Angeles Fire Department	Port Angeles	No	
Port Orchard Fire Department	Port Orchard	No	

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

Name of Agency	Admin City	Response Capability	Level of Service
Puyallup Fire Department	Puyallup	Yes	Class B
Renton Fire Department	Renton	Yes	Class A
Roslyn Fire Department	Roslyn	No	
San Juan County FD #3	Friday Harbor	No	
San Juan County FPD #2	East Sound	No	Isolate, identify, deny entry
Sedro Woolley Fire Department	Sedro Woolley	No	
SJCFD #4	Lopez Island	No	
Skagit County Fire District #2	Mt. Vernon		
Skagit County Fire District #8	Sedro Woolley	No	
Skamania Co. Fire Dist. #1	Carson	No	
Skamania Fire District #3		No	
Snohomish City Fire Protection District	Stanwood	No	
Snohomish Co. Fire District #11			
Snohomish County Fire Dist. #26	Gold Bar	Yes, some Class C	Some Class C
Snohomish County Fire District #1	Lynnwood	No	
Snohomish County Fire District #20	Stanwood	No	
Snohomish County Fire District #4	Snohomish	Yes	Class B
Snohomish County Fire Protection District		No	R&I Only
Snohomish County FPD #15	Marysville	No	
Southwest WA Regional Hazmat Response	Chehalis	Yes	Class A
Spokane CFD #5		No	
Spokane County Fire District #4	Deer Park	They say yes, but they also say their hazmat response is delivered by Spokane	

HAZARDOUS MATERIAL SURVEY
RESPONSE CAPABILITY

Name of Agency	Admin City	Response Capability	Level of Service
Sprague Fire Department	Sprague	No	
Terrace Heights Fire Department	Yakima	They say yes, but no	
Thurston County Fire District #1		No	
Thurston County Fire District #12	Tenino	No	
Thurston County Fire District #2	Yelm	No, but they said yes	First responder
Thurston County Fire District #5	Olympia	No	
Thurston County Fire District #9		No, member of Metro	
Thurston County Fire Protection District	Rainier	No	
Thurston County Fire Protection District		No	
Thurston County Fire Protection District	Olympia	No	First responder
Union Gap Fire Department	Union Gap	No, but said yes	Class C, limited
Volunteer Fire Dept. of Odessa	Odessa	No first responders only	
Walla Walla County Fire District #4	Walla Walla	No	
Walla Walla County Fire Protection District	Prescott	No	
Washington State University		No	
Washougal Fire Department	Washougal	No	
Westinghouse Hanford Company	Richland	Yes	Class A
Whatcom County Fire Protection District	Bellingham	Yes	Class B
White Salmon Volunteer Fire Department		No, other than gasoline, oil, propane, fires, etc.	
Woodinville Fire and Life Safety	Woodinville	No, but said yes	Technician Level
Yacolt Fire Department	Yacolt	No	
Yakima County District #4 Moxee Fire District	Moxee	No	
Yakima County Fire District #6	Yakima	No	

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

APPENDIX IV

Name of Agency	Admin City	Mutual Aid Agreements
County Fire Protection District	N/A	
Fire Department Skagit #14	Alger	
n County Fire Protection District	Clarkston	
Aum Fire Department	Auburn	They will respond to any mutual aid with any municipal Level A Hazmat Team in King or Pierce County.
Bay View Fire Department District #12	Bay View	
Bellingham Fire Department	Bellingham	
Benton County Fire District #6		
Centralia Fire Department	Centralia	
City of Edmonds Fire Department	Edmonds	
City of Fircrest Fire Department	Fircrest	
City of Port Townsend Fire Department	Port Townsend	
City of Ritzville Volunteer Fire Department	Ritzville	
City of Shelton Fire Department	Shelton	
City of Sunnyside Fire Department	Sunnyside	
City of Vancouver Fire Department	Vancouver	We have an agreement with the Haz-Mat Team from Clark County Fire District #5
City of Woodland Fire Dept./Clark Co.	Woodland	Mutual aid with Clark County #5
Clallam County Fire Protection District	Sequim	
Clark County Fire District #6	Vancouver	
Clark County Fire District #9	Camas	
College Place Fire Department	College Place	None
Cosmopolis Fire Department	Cosmopolis	
Cowlitz Fire Protection District #7	Ariel	

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

Name of Agency	Admin City	Mutual Aid Agreements
Creston Volunteer Fire Dept. #7		
Darrington Fire Department	Darrington	
Dayton Fire Department	Dayton	
Eastside Hazmat Team/Bellevue Fire St.	Bellevue	None
Electric City Volunteer Fire Department	Electric City	
Ellensburg Fire Department	Ellensburg	Yes, with other Kittitas County fire departments
Enumclaw Fire Department/KCFD #28/R	Enumclaw	
Ferndale Fire Department	Ferndale	
Ferry County Fire Protection District		
Franklin County District #3	Pasco	Seven departments that belong to tri-county Hazmat response group. The host department is the City of Richland, but all members have one to five members on team.
Friday Harbor Fire Department	Friday Harbor	
Garfield County Fire District #1	Pomeroy	
Grant County Fire District #8	Mattawa	
Grays Harbor Fire District #1	Oakville	
Grays Harbor Fire District #10	Grays Harbor	Mutual Aid
Grays Harbor Fire District #2	Aberdeen	
Guemes Island FD/Skagit Co. FPD #17	Guemes	
Island County Fire District #5	Whidbey Island	
Island County Fire Protection Dist. #3	Langley	
Issaquah City Fire Department	Issaquah	
ITT Rayonier Hazmat Team	Port Angeles	
King County Fire District #10	Issaquah	

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

Name of Agency	Admin City	Mutual Aid Agreements
King County Fire District #16	Bothell	Seattle Fire Department will respond to bona fide incidents when called.
King County Fire District #20	Seattle	
King County Fire District #38	North Bend	With Snoqualmie and North Bend and adjacent districts KCFD 10, 27, 51
King County Fire District #43	Maple Valley	
King County Fire District #44	Auburn	
Kitsap County Fire District #1	Silverdale	
Kitsap County Fire District #15		None
Kitsap County Fire District #2	Bainbridge	
Kitsap County Fire Protection District	Kingston	
Kitsap Fire Protection District #14	Hangville	
Kittitas County Fire District #3	Easton	
Klickitat County Fire District #1	Trout Lake	
Lakewood Fire Department	Tacoma	
Lewis County Fire District #10		
Lewis County Fire District #12	Centralia	
Lewis County Fire Protection District	Towns of Doty, Meskill	
Lincoln County Fire District #1	Sprague	
Lincoln County Fire District #4	Reardan	
Lincoln County Fire District #6		
Lincoln County Fire District #9		
Longview Fire Department	Longview	
Lummi Island Fire Department #11	Lummi Island	

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

Name of Agency	Admin City	Mutual Aid Agreements
Lyndon Fire Department	Lyndon	
Lynnwood Fire Department	Lynnwood	Agreement with Snohomish County
Marlin Fire Department	Krupp	
Mason County Fire District #1	Hoodsport	
Mason County Fire District #4	Shelton	
Mason County Fire Protection District		
Mason County Fire Protection District	Allyn	
Monroe Fire District #3	Monroe	County-wide Mutual Aid Agreement
North Bend Fire Department		
Oakesdale Farmington Fire District #10	Oakesdale	
Ocean Shores Fire Department	Ocean Shores	
Okanogan Fire Department		
Okanogan Fire Department #2		
Olympia Fire Department Metro	Olympia	Olympia, City of - Fire District #3 Tumwater, City of - Fire District #9 Lacey, City of - Fire District #15 Port of Olympia Washington State Patrol
Omak Fire Department	Omak	
Orting Fire Department/Pierce County	Orting	
Pacific Fire Department	Pacific	Mutual Aid agreement with Auburn Fire Department Special Operations
Pateros Fire Department	Pateros	
PCFC #12		
Pierce County #26		

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

Name of Agency	Admin City	Mutual Aid Agreements
Pierce County Fire Department #15	Eatonville	
Pierce County Fire Protection District	Anderson Island	
Port Angeles Fire Department	Port Angeles	
Port Orchard Fire Department	Port Orchard	
Puyallup Fire Department	Puyallup	Mutual Aid with City of Auburn's A Team
Renton Fire Department	Renton	King County Chief's Mutual Aid Agreement
Roslyn Fire Department	Roslyn	
San Juan County FD #3	Friday Harbor	
San Juan County FPD #2	East Sound	County-wide Mutual Aid Agreements. WA State Patrol has oversight in the county.
Sedro Woolley Fire Department	Sedro Woolley	
SJCFD #4	Lopez Island	
Skagit County Fire District #2	Mt. Vernon	
Skagit County Fire District #8	Sedro Woolley	
Skamania Co. Fire District #1	Carson	
Skamania Fire District #3		
Snohomish City Fire Protection District	Stanwood	
Snohomish County Fire District #11		
Snohomish County Fire District #28	Gold Bar	Mutual Aid Agreements with all county departments. However, Hazmat response capability is limited.
Snohomish County Fire District #1	Lynnwood	
Snohomish County Fire District #20	Stanwood	
Snohomish County Fire District #4	Snohomish	County-wide Mutual Aid Agreement
Snohomish County Fire Protection District		

HAZARDOUS MATERIAL SURVEY
MUTUAL AID INFORMATION

Name of Agency	Admin City	Mutual Aid Agreements
Snohomish County FPD #15	Marysville	
Southwest WA Regional Hazmat Response	Chehalis	N/A
Spokane CFD #5		
Spokane County Fire District #4	Deer Park	
Sprague Fire Department	Sprague	
Terrace Heights Fire Department	Yakima	We have Mutual Aid Agreements with all Upper Valley County Fire Districts, Yakima Firing Center and the City of Yakima Fire Departments.
Thurston County Fire District #1		
Thurston County Fire District #12	Tenino	
Thurston County Fire District #2	Yelm	
Washington State University		
Washougal Fire Department	Washougal	
Westinghouse Hanford Company	Richland	None for hazardous material response
Whatcom County Fire Protection District	Bellingham	No formal agreement, however, members on our department have the capability to receive support from their company teams.
White Salmon Volunteer Fire Department		
Woodinville Fire and Life Safety	Woodinville	Bayside Haz-Mat Team Six departments
Yacolt Fire Department	Yacolt	
Yakima County District #4 Moxee Fire Dept.	Moxee	
Yakima County Fire District #6	Yakima	Mutual Aid and First Response Agreement with Lewis County Hazmat Unit.

APPENDIX V

HAZARDOUS MATERIAL SURVEY
CAPITAL AND OPERATIONAL
COST INFORMATION

NOTE: ONLY
HAZ-MAT TEAMS
SHOW COST
FIGURES

Name of Agency	Training capital cost	Equipment capital cost	Total capital cost	Training O&M	Administrative O&M	Equipment O&M
Adams County Fire Protection District						
Alger Fire Department Skagit #14						
Asotin County Fire Protection District						
Auburn Fire Department	$20,000.00	$60,000.00	$30,000.00	$14,000.00	$1,000.00	$17,000.00
Bay View Fire Department District #12						
Bellingham Fire Department						
Benton County Fire District #6						
Centralia Fire Department						
City of Edmonds Fire Department						
City of Fircrest Fire Department						
City of Port Townsend Fire Department						
City of Ritzville Volunteer Fire Dept.						
City of Shelton Fire Department						
City of Sunnyside Fire Department						
City of Vancouver Fire Department						
City of Woodland Fire Dept/Clark Co.						
Clallam County Fire Protection District						
Clark County Fire District #6						
Clark County Fire District #9						
College Place Fire Department						
Cosmopolis Fire Protection District #7						
Creston Volunteer Fire Dept. #7						
Darrington Fire Department						
Dayton Fire Department						
Eastside Hazmat Team/Bellevue Fire St.				$17,744.00	$2,760.00	$13,400.00
Electric City Volunteer Fire Dept.						
Ellensburg Fire Department						
Enumclaw Fire Department/KCFD #28/R						
Ferndale Fire Department						
Ferry County Fire Protection District						

HAZARDOUS MATERIAL SURVEY
CAPITAL AND OPERATIONAL
COST INFORMATION

NOTE: ONLY
HAZ-MAT TEAMS
SHOW COST
FIGURES

Name of Agency	Training capital cost	Equipment capital cost	Total capital cost	Training O&M	Administrative O&M	Equipment O&M
Franklin County District #3	$100,000.00	$70,000.00	$0.00	$18,000.00	$3,000.00	$10,000.00
Friday Harbor Fire Department						
Garfield County Fire District #1						
Grant County Fire District #8						
Grays Harbor Fire District #1						
Grays Harbor Fire District #10						
Grays Harbor Fire District #2						
Guemes Island FD/Skagit Co. FPD #17						
Island County Fire District #5						
Island County Fire Protection Dist. #3						
Issaquah City Fire Department						
ITT Rayonier Hazmat Team	$62,000.00	$108,000.00		$42,000.00	$35,000.00	$8,000.00
King County Fire District #10						
King County Fire District #16						
King County Fire District #20						
King County Fire District #38						
King County Fire District #43						
King County Fire District #44						
Kitsap County Fire District #1						
Kitsap County Fire District #15						
Kitsap County Fire District #2						
Kitsap County Fire Protection District						
Kitsap Fire Protection District #14						
Kittitas County Fire District #3						
Klickitat County Fire District #1						
Lakewood Fire Department						
Lewis County Fire District #10						
Lewis County Fire District #12						
Lewis County Fire Protection District						

HAZARDOUS MATERIAL SURVEY
CAPITAL AND OPERATIONAL
COST INFORMATION

NOTE: ONLY
HAZ-MAT TEAMS
SHOW COST
FIGURES

Name of Agency	Training capital cost	Equipment capital cost	Total capital cost	Training O&M	Administrative O&M	Equipment O&M
Lincoln County Fire District #1						
Lincoln County Fire District #4						
Lincoln County Fire District #6						
Lincoln County Fire District #9						
Longview Fire Department						
Lummi Island Fire Department #11						
Lyndon Fire Department						
Lynnwood Fire Department	$7,000.00	$100,000.00		$5,000.00	$2,000.00	$5,300.00
Marlin Fire Department						
Mason County Fire District #1						
Mason County Fire District #4						
Mason County Fire Protection District						
Mason County Fire Protection District						
Monroe Fire District #3						
North Bend Fire Department						
Oakesdale Farmington Fire District #10						
Ocean Shores Fire Department						
Okanogan Fire Department						
Okanogan Fire Department #2						
Olympia Fire Department Metro				$10,000.00		$15,000.00
Omak Fire Department						
Orting Fire Department/Pierce County						
Pacific Fire Department						
Pateros Fire Department						
PCFD #12						
Pierce County #26						
Pierce County Fire Department #15						
Pierce County Fire Protection District						
Port Angeles Fire Department						
Port Orchard Fire Department						

HAZARDOUS MATERIAL SURVEY
CAPITAL AND OPERATIONAL
COST INFORMATION

NOTE: ONLY
HAZ-MAT TEAMS
SHOW COST
FIGURES

Name of Agency	Training capital cost	Equipment capital cost	Total capital cost	Training O&M	Administrative O&M	Equipment O&M
Puyallup Fire Department	$4,256.00	$5,782.00	$31,602.00	$4,200.00	$1,250.00	$1,540.00
Renton Fire Department				$3,600.00	$0.00	$13,205.00
Roslyn Fire Department						
San Juan County FD #3						
San Juan County FPD #2						
Sedro Woolley Fire Department						
SJCFD #4						
Skagit County Fire District #2						
Skagit County Fire District #8						
Skamania Co. Fire Dist. #1						
Skamania Fire District #3						
Snohomish City Fire Protection District						
Snohomish County Fire District #11						
Snohomish County Fire District #26						
Snohomish County Fire District #20						
Snohomish county Fire District #4	$1,300.00	$1,200.00	$6,000.00	$500.00		$1,500.00
Snohomish County Fire Protection District						
Snohomish County FPD #15						
Southwest WA Regional Hazmat Resp	$3,000.00	$7,900.00			$0.00	
Spokane CFD #5						
Spokane County Fire District #4						
Sprague Fire Department						
Terrace Heights Fire Department						
Thurston County Fire District #1						
Thurston County Fire District #12						
Thurston County Fire District #2						
Thurston County Fire District #5						
Thurston County Fire District #9						
Thurston County Fire Protection District						

HAZARDOUS MATERIAL SURVEY
CAPITAL AND OPERATIONAL
COST INFORMATION

NOTE: ONLY
HAZ-MAT TEAMS
SHOW COST
FIGURES

Name of Agency	Training capital cost	Equipment capital cost	Total capital cost	Training O&M	Administrative O&M	Equipment O&M
Thurston County Fire Protection District						
Thurston County Fire Protection District						
Union Gap Fire Department						
Volunteer Fire Dept. of Odessa						
Walla Walla County Fire District #4						
Walla Walla County Fire Protection						
Washington State University						
Washougal Fire Department						
Westinghouse Hanford Company	$76,000.00	$265,000.00	$265,000.00	$30,000.00	$1,200.00	$10,000.00
Whatcom County Fire Protection District						
White Salmon Volunteer Fire Department						
Woodinville Fire and Life Safety	$200,000.00	$100,000.00	$20,000.00	$10,000.00	$0.00	$15,000.00
Yacolt Fire Department						
Yakima County District #4 Moxee Fire D						
Yakima County Fire District #6						

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Adams County Fire Protection District			
Alger Fire Department Skagit #14			
Asotin County Fire Protection District			
Auburn Fire Department	City Budget	Interlocal retainer $1500 per year per jurisdiction. Bills for recovery of cost. City budget process.	
Bay View Fire Department District #12			
Bellingham Fire Department			
Benton County Fire District #6			
Centralia Fire Department			
City of Edmonds Fire Department			
City of Fircrest Fire Department			
City of Port Townsend Fire Department			
City of Ritzville Volunteer Fire Department			
City of Shelton Fire Department			
City of Sunnyside Fire Department			
City of Vancouver Fire Department			
City of Woodland Fire Dept./Clark Co.			
Clallam County Fire Protection District			
Clark County Fire District #6			
Clark County Fire District #9			
College Place Fire Department			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Cosmopolis Fire Department			
Cowlitz Fire Protection District #7			
Creston Volunteer Fire Dept. #7			
Darrington Fire Department			
Dayton Fire Department			
Eastside Hazmat Team/Bellevue Fire St.	Original response vehicle & equipment were donated by the participating agencies.	Each of the 5 participating agencies contributes a percentage of the operating budget based on a formula that incorporates AV, population, and alarm activity.	$35,424.00
Electric City Volunteer Fire Dept.			
Ellensburg Fire Department			
Enumclaw Fire Department/KCFD #28/R			
Ferndale Fire Department			
Ferry County Fire Protection District			
Franklin County District #3	Local support $10,000 Each department $5,000 in cash or equipment	Each member's annual dues	$10,000.00
Friday Harbor Fire Department			
Garfield County Fire District #1			
Grant County Fire District #8			
Grays Harbor Fire District #1			
Grays Harbor Fire District #10			
Grays Harbor Fire District #2			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Guemes Island FD/Skagit Co. FPD #17			
Island County Fire District #5			
Island County Fire Protection Dist. #3			
Issaquah City Fire Department			
ITT Rayonier Hazmat Team	Privately funded by ITT Rayonier, Inc.	ITT Rayonier	$88,000.00
King County Fire District #10			
King County Fire District #16			
King County Fire District #20			
King County Fire District #38			
King County Fire District #43			
King County Fire District #44			
Kitsap County Fire District #1			
Kitsap County Fire District #15		None	$0.00
Kitsap County Fire District #2			
Kitsap County Fire Protection District			
Kitsap Fire Protection District #14			
Kittitas County Fire District #3			
Klickitat County Fire District #1			
Lakewood Fire Department			
Lewis County Fire District #10			
Lewis County Fire District #12			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Lewis County Fire Protection District			
Lincoln County Fire District #1			
Lincoln County Fire District #4			
Lincoln County Fire District #6			
Lincoln County Fire District #9			
Longview Fire Department			
Lummi Island Fire Department #11			
Lyndon Fire Department			
Lynnwood Fire Department	General fund	Hazardous material permit fees, cost recovery from spills, shops and manufacturers	$28,300.00
Marlin Fire Department			
Mason County Fire District #1			
Mason County Fire District #4			
Mason County Fire Protection District			
Mason County Fire Protection District			
Monroe Fire District #3			
North Bend Fire Department			
Oakesdale Farmington Fire District #10			
Ocean Shores Fire Department			
Okanogan Fire Department			
Okanogan Fire Department #2			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Olympia Fire Department Metro	Current expense budget capital outlay	Current expense budget	$10,000.00
Omak Fire Department			
Orting Fire Department/Pierce County			
Pacific Fire Department			
Pateros Fire Department			
PCFD #12			
Pierce County #26			
Pierce County Fire Department #15			
Pierce County Fire Protection District			
Port Angeles Fire Department			
Port Orchard Fire Department			
Puyallup Fire Department	Department Budget	Taxes	
Renton Fire Department	Fire Department Budget	Fire Department Budget	$35,885.00
Roslyn Fire Department			
San Juan County FD #3			
San Juan County FPD #2			
Sedro Woolley Fire Department			
SJCFD #4			
Skagit County Fire District #2			
Skagit County Fire District #8			
Skamania Co. Fire Dist. #1			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Skamania Fire District #3			
Snohomish City Fire Protection District			
Snohomish County Fire District #11			
Snohomish County Fire District #26	Tax base	Tax base	
Snohomish County Fire District #1			
Snohomish County Fire District #20			
Snohomish county Fire District #4	Our own operating budget	Our own operating budget	
Snohomish County Fire Protection District			
Snohomish County FPD #15			
Southwest WA Regional Hazmat Resp.	Subscription/Interlocal Agreement	Fees for services to nonsubscribers	$1,000.00
Spokane CFD #5			
Spokane County Fire District #4			
Sprague Fire Department			
Terrace Heights Fire Department			
Thurston County Fire District #1			
Thurston County Fire District #12			
Thurston County Fire District #2			
Thurston County Fire District #5			
Thurston County Fire District #9			
Thurston County Fire Protection District			
Thurston County Fire Protection District			

HAZARDOUS MATERIAL SURVEY
FUNDING SOURCES AND
BUDGET

NOTE: ONLY HAZ-MAT TEAMS
SHOW INFORMATION

Name of Agency	Funding sources-capital	Funding sources-ongoing	Annual budget
Thurston County Fire Protection District			
Union Gap Fire Department			
Volunteer Fire Dept. of Odessa			
Walla Walla County Fire District #4			
Walla Walla County Fire Protection			
Washington State University			
Washougal Fire Department			
Westinghouse Hanford Company	Expense funds for training existing capital fund	Federal Government	$192,500.00
Whatcom County Fire Protection District			
White Salmon Volunteer Fire Department			
Woodinville Fire and Life Safety	Capital improvement department budget	Departmental (funds)	$25,000.00
Yacolt Fire Department			
Yakima County District #4 Moxee Fire D			
Yakima County Fire District #6			